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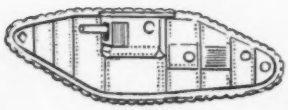
ARMORED CAVALRY JOURNAL



MAY-JUNE, 1947

The Armored Cavalry

CIRCULAR
No. 94

WAR DEPARTMENT
WASHINGTON 25, D. C. 10 April 1947

Effective until 10 October 1948 unless sooner rescinded or superseded

EXTRACT

II. ARMORED CAVALRY. 1. The Armored Force was constituted as an emergency measure. Because Armor is not a permanent arm an officer assigned to an armored (tank) unit retains his basic branch while so assigned. Upon relief from armored assignment he often loses his identity as an armored officer and is assigned in accordance with his basic arm.

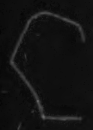
2. In order that armored officers may retain their armored identity, action is being taken to assign all such officers to a single arm which will have primary responsibility for armored officer personnel. Eventually, it is expected that statutory approval will be given to the formation of an Armored-Cavalry arm which will replace the present Cavalry arm. Pending such action, it is planned to detail in the Cavalry those officers of the other arms who are qualified armored (tank) officers and who do not object to this action. Letters, with a view to their detail in the Cavalry, are being sent to those officers whose records indicate qualification in Armor. At the same time, Cavalry officers who are not qualified in Armor and who do not desire service with Armor are being given an opportunity for detail in or transfer to other arms and services.

3. As the records available are incomplete in many cases, it is probable that many officers affected may not have been contacted by letter. Such officers who are qualified in Armor may apply for detail in Cavalry. Similarly, Cavalry Officers who are not qualified in Armor or Mechanized Cavalry may apply for detail in or transfer to other arms or services. These applications should state qualifications or experience and be addressed to The Adjutant General, Attention: WDGPA-O-CAV, Washington 25, D. C.

4. This action will have no effect upon the current assignment of any individual concerned.

5. The contents of this circular will be brought to the attention of all officers.

(AG 210.31 (25 Mar 47).



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Industry Underground?

by Leonard J. Grassman

In considering going underground, it is easily recognizable that such a move is highly practicable in enhancing our national security in view of the modern type and future potential type of warfare. The underground evolution can and should be achieved gradually, and in its achievement might give the rest of the world evidence of our caution and potential strength.

WILL international distrust—the nonacceptance of U.S. good intention and the threat to peace—force the United States to undertake a policy of perpetual preparedness necessitating costly protective measures for our industrial facilities? And, will war potential and war protection play an equal role with commercial practicality in industrial planning in the future?

These questions, stimulated by the slow progress at the peace tables of the world have caused speculation on the utilization of underground sites in the United States for storage and factory facilities to reach a high point among people interested in the future invulnerability of our nation in the event of another war. This speculation, of course, is natural. Both the novelty and practicability of protected subterranean facilities grasp the attention of the curious and concerned.

The science of warfare has altered so rapidly in recent years, the military feasibility of underground utilization is still in the research stage. True, such utilization was proven practicable during the past war, but those instances were the result of emergency action rather than of long-range planned defense. Consequently, widespread utilization in the future must come as the result of careful study and planning and extensive preparation, which, naturally, takes time, and which, of course, makes the present too early to anticipate any lengthy official information on the subject.

The idea of subsurface facilities is not new. It was put into practice by many nations prior to and during the war, and proved practical to varying degrees, and, in some instances, highly impracticable. At the end of the war, the knowledge of these experiences was part of the vast knowledge gained by U.S. Armed Forces, and with the advent of peace, this data was being weighed and evaluated by those charged with the security of our nation.

Many months ago, the Corps of Engineers, in behalf of the Army-Navy Munitions Board, which is charged with planning U.S. Industrial Mobilization against any future emergency, undertook a preliminary survey on caves, mines, and quarries as underground sites. This survey, as indicated, was preliminary in nature—the type of survey usually indicative of nothing more than to show whether or not an extensive survey is justified.

The purpose of the survey was to determine the availability of underground sites for industrial facilities, if needed, and all possible relative data concerned in the great problem of subsurface utilization—structure, strength, accessibility, humidity, etc. All such information is essential before any planned pattern for underground utilization can even be considered.

Although the report of the survey is classified and has not been made public, it is understood that the survey covered some 1,000 representative types of underground sites, determining their possible utilization value for storage and other industrial facilities.

Research has made it evident that, contrary to popular misconception, natural caves do not make the best underground sites for these purposes. Natural twists and variations in levels make a great amount of reconstruction requisite. Another detrimental factor existent

in caves is high humidity, which is harmful to stored materials and costly to control. And since many of the cave hollows have been cut by underground streams, or water seepage, conditions of high humidity usually exist and make the site unsuitable for further use.

The preliminary survey report provides a wealth of data, and a concrete picture of the value, locations, and accessibility of underground sites for potential utilization. It also furnishes data on the apparent and possible weaknesses of these sites. Other studies will be required to determine whether or not constructed subsurface facilities will provide better service and protection and prove less costly.

Quite apparent are some of the advantages manufactured sites have over natural sites. Mechanically constructed subsurface facilities can be built per specifications based on need in accordance with the latest military knowledge of the subject, where needed and with ideally chosen accessibility, and to the size desired, whereas natural sites would be limiting in most cases in each of these features except in highly coincidental cases. Constructed facilities may also prove to be less expensive than reconstructed natural facilities.

In considering *going underground,* it is easily recognizable that such a move is highly practicable in enhancing our national security in view of the modern type and future potential type of warfare. Now, more than ever before, and even more so in the future, as the Atomic Bomb and similarly devastating weapons indicate themselves as standard weapons in future warfare, utilization of below-surface protection is essential to the unhampered productivity of our industry, our populace, and material resources during any future hostilities. Effects of the strategic bombing in Europe and Japan during the past debacle proved that even in the use of the lesser weapons of the recent era, underground factories and facilities are an absolute necessity. The good condition of such facilities in Germany after bombing which obliterated whole cities indicates the greater impregnability of "down under. . . ."

However, "going down" for the human race is much more problematical than for the Gopher. There are many difficulties involved, requiring a special research and development program. So different is such a project from anything we have had to date, a vast study, in addition to all which has been achieved heretofore, is requisite before a workable plan for underground protection can be perfected.

Evaluating Underground Utilization

In an attempt to evaluate the necessity and value of underground utilization it is essential to start at the point whereupon this element of warfare first assumed an importance in the modern age. Militarily, the underground has been used for centuries and was proven practicable. Many of our modern fortresses and installations, primarily those of stable defense artillery, have subterrane spaces for storage, magazine, and shelter purposes, all of which are of proven value. Corregidor's great stand is a monument to the value in the era just past as were the Catacombs a monument to that value in Antiquity. Now, it becomes the task of the Army-Navy Munitions Board to acquire the knowledge to recommend the action which will achieve more than a monument of defense, but a monument of invulnerability.

In the Pacific phase of World War II, the Japs utilized the underground wherever possible, and, in those territories and islands long in their possession, went to great pains to provide such facilities. The accumulative defense tenacity of these measures added to the time extent of that phase of the war. Each cave so utilized by the Nips proved a veritable fortress and took all the power our forces could muster to obliterate it.

In Germany, underground sites were utilized extensively, and there, too, proved valuable. At Neuhof, Germany, the salt mine was used by the German Army for their medical and chemical warfare supplies and quartermaster materials as long ago as 1936. The mine, 1,800 feet below the surface of the ground, had 64 miles of storage space. Hundreds of tons of supplies were stored there. Small trains with battery motor power were used with a great deal of efficiency for transportation through the tunnels, while two speedy elevators were used for communication with the surface.

Along with using these spaces for storage, the Nazis used some of the huge compartments to fill hand grenades and explosives.

At Geislingden, Germany, the enemy had achieved a huge factory cut into a hill which provided both natural camouflage and natural protection. Although it took only two tons of dynamite, carefully distributed throughout the entire plant by our victorious forces to destroy this factory, flotillas of B-29's could have unloaded carloads of blockbusters on top of it with little more effect than the concussion experienced by a battleship from its own guns.

With the termination of hostilities many of our officers returned to the United States highly impressed with the value of the underground for industrial facilities. However, until all possible information on the subject has been examined thoroughly, it is impracticable to determine what influence the experiences in Europe will have on our activities. After an extensive study and a careful evaluation of all possibilities, with complete data, and the proven military feasibility of subsurface utilization, it is presumed that plans will be developed further. At the moment underground investigations are confined to research projects and little more.

As earlier stated, the value of underground utilization was proven to some extent during the late war, and, rumor and fact indicate that other nations are a little faster and less cautious in seizing upon the idea as a defense measure. Great Britain, which had underground factories which withstood the pounding during

the Battle of Britain, is said to be enlarging upon what it had previously. Another country, it is persistently rumored, has pressed prisoner-of-war labor into the construction of the largest underground airfield in the world—located in a highly dominating and commanding area, which has great semiglobal air-striking potential. Sweden, also, has many such facilities, some of which have been constructed since the war.

With such a background, subterranean facilities cease to be a matter of conjecture, but a concrete element in the science of modern warfare—an element worthy of careful study and evaluation. This evaluation will require, among many other things, an extensive study into the geophysical aspects, morale and psychological effects, effectivity of the below-surface sites against specific weapons, the efficient interweaving of sites into the national industrial pattern, costs, and the extent to which American industry might or should go underground.

Earlier information eliminates the utilization of natural caves for this purpose, outside of, perhaps, as storage facilities for rugged materials. Abandoned mines might prove to be of some value for storage only, because of structure and limited accessibility.

In order for an underground site to be efficient as well as protective as a factory facility, it must have normal and expeditive accessibility for both personnel and materials. One of the great errors committed by the Germans was in commandeering underground mines with limited means of physical communication with the surface for below-surface factories. It has been reported that as much as half a shift was absorbed in some instances in the transportation of workers to and from the surface. With portal-to-portal pay a labor factor in the modern world, such a situation would mean: "Go down; go up; go bust!"

Similar and many other problems rule out the extensive use of abandoned coal mines as practical underground facilities, aside from limited storage and shelter purpose. Upon abandonment, most of the physical communieation systems are removed along with much of the protective construction such as shoring and other similar construction. Subsequent deterioration and collapse offer extensive costly construction to achieve rather limited space, and a good argument for man-made below-surface areas.

Abandoned Quarries Limited

It has been suggested abandoned quarries are highly adaptable for the purpose, but these, too, are limited because of their nature and relation to national economy. Quarries invariably never "run out," and are almost limitless in their productivity. The causes of their abandonment have generally been production costs because of having been cut to a depth that equipment to bring the product to the surface is more costly than profitable, depressions, which curtail building activity and consequently the demand for quarry material, and the war, which had a similar effect. Building booms and normal national material expansion would complicate underground planning to an embarrassing extent, and in the case of the former limitation—depth—it might prove equally limiting because of costly accessibility.

Relatively, there is little left for our industrial and defense planners to do but figure on constructed subterranean facilities.

For such construction, it becomes immediately apparent that softstone areas, primarily limestone, are most adequate and widespread in our country for the purpose of underground building. Limestone, according to the Department of Interior's Minerals Yearbook, "in the form of dimension stone, is used almost exclusively for building purposes. Under normal conditions limestone is the most widely used building stone. . . ."

Areas of this and similar stone are located in almost every part of the United States, offering part of the solution to the general problem—location. Materials on (or in) site are a valuable asset in such a selection.

In construction of a below-surface facility, it can be recognized that if such a facility must be constructed for protective reasons the problem of depth is of major importance. How deep must one go to be immune from modern or possible and probable future weapons? Apparently, from the type of weapons now used, the depth need not be great. Bombs do not have a great penetrating effect, and all known explosives have a tendency to blow up or about rather than down, and, it is doubtful, if a propelled missile, such as a rocket, could add much to the normal weight velocity of a standard artillery missile or bomb to achieve greater ground surface penetration.

In any event, available statistics on the earth surface penetration of existing weapons will provide the key to both the depth needed and an estimate of the penetrability of possible future weapons. However, ventilation systems now used could be vulnerable points in the impregnability of Mother Earth. Radioactivity might be able to transverse this system as could chemical weapons. However, proper plating could protect such a facility from radioactivity and sealing up ventilation systems and using emergency oxygen during attack periods, with the aid of proper decontamination systems could negate the effects of such attacks upon underground facilities. Better still would be a ventilation system, composite within the facility with a completely artificial air source and with a standby oxygen supply for emergencies caused by breakdown or power failure.

In the realm of morale, underground facilities offer a complex problem, not new, but a new version on an old mental quirk relative to the underground. Maintaining good morale among workers in underground developments should not be too difficult. There is little difference in working in a below-surface factory than in

many of our modern plants which are completely sealed from natural atmosphere, depending completely upon artificial light, and mechanical ventilation. The problem, however, will be primarily in "conditioning" workers to overcome the "trapped" complex which invariably smites one in working in such a plant. Normally, the worker in such a plant becomes accustomed to the odd surroundings the underground facility offers, but "warmth" in the interior design of such a facility would aid the underground worker immeasurably in overcoming whatever qualms he might have upon entering such an activity or which he might acquire.

Psychologically, an underground worker will have to be made to feel the "strength" of his surroundings and all its accompanying assurances, and extensive health measures, similar to those used by the Navy for its submarine personnel, will have to be assumed to assure the worker that his health is not being impaired by his "gopher" activity.

Generally, during war, underground morale will be dependent upon the same assurances it took for workers under normal conditions during the past conflict.

Perhaps the biggest psychological threat in the idea of underground protection is not the fearful effect of such a situation on people but the overconfidence such protection might instill in our people. The Maginot Line, and its effect on the French populace is highly indicative of what extreme faith in a defense measure can accomplish. In a similar but smaller fashion, our nation suffered because of our confidence in the protection of a few thousand miles of ocean. Initially, with the inception of below-surface protection for our industry and people, should come an emphasis that such a measure, great as it might be, is but a small part of national defense. Our nation, like the ostrich, might well stick its head into a hole only to have its tail feathers—or something less superficial—shot off.

Interweaving underground facilities into the national industrial network could be more of an asset than a problem for it would be part of a planned industrial layout. Existing industrial facilities, for the most part, are ill-planned because of the nature of their inception into the national economy. Heretofore, an industry, at birth, depended on its accessibility to the raw material source, to markets, and, in some cases, on accessibility to labor sources and on economical locale. The type of product, the period, available transportation facilities, and many other factors determined the location of a factory, usually bunching them into compact zones, which now provide excellent target areas for potential enemies attacking.

Underground Sites Location

Location of underground sites should go hand-in-glove with decentralization of U.S. Industry, which must also be considered in defense planning. In planning a new facility, a corporation now might well consider the value of strategically locating such a facility away from a "vital" area and, while doing this, consider the feasibility of going underground.

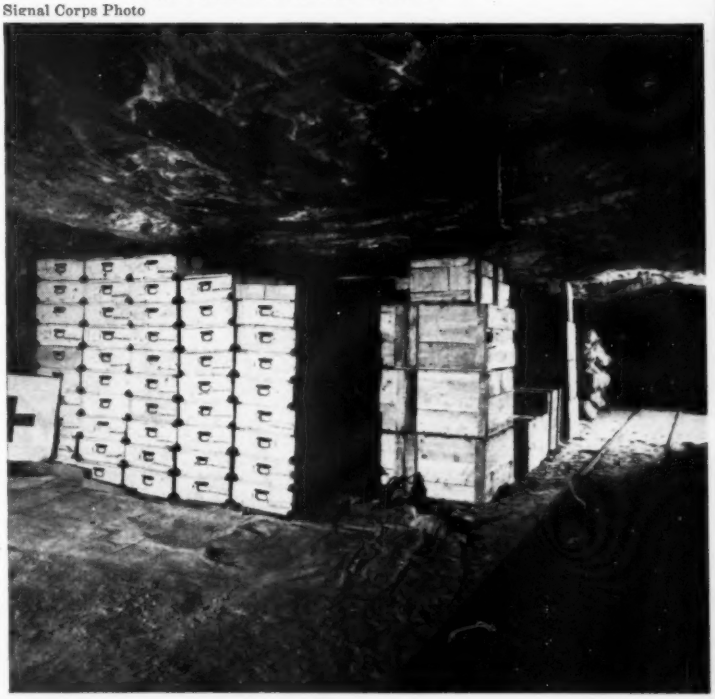
It is doubtful that with modern mechanical methods the cost of constructing an underground plant would much exceed that of a surface plant. It may prove to be less costly, and certainly maintenance of such a facility would minimize some expenses.

Immediate apparent benefits of underground and/or decentralized industries and a classic and tragic example of the danger of a surface and centralized industry were illustrated in the recent Texas City, Texas, devastation. There one nitrate-laden vessel, a rough equivalent to a few blockbusters, started a rush of destruction which demolished a city and destroyed hundreds of millions of dollars of industry which would have been vital in a war emergency. Aside from the material destruction, there were many by-effects, terrifically costly in a war effort. The tie-up of emergency apparatus and personnel, the necessity of the services of medical personnel, and the use of hospital space and housing for such victims would add greatly to the war burden. The whole tragedy, caused by an explosive mild in contrast with what the future might offer, gives a vivid illustration of the drastic necessity of remodeling our industrial organization in conformity with the dangers offered in future emergency.

Like decentralization of industry, the suggestion that industry go underground is a vast assumption. Because

A salt mine in Neuhof, Germany, was used as a storage bin by the German Army for their medical and chemical warfare supplies and quartermaster material, as long as 10 years ago, a further indication of the long-term planning of the Nazis for World War II.

Signal Corps Photo



of the magnitude of such a move, it cannot be suggested that American industry do either as an outright move; it must be an evolutionary program consisting of dispersed construction of new facilities, and later, as existing facilities deteriorate to a renewal point, replacement with a dispersed facility. More evolutionary will be dispersal of the human element of industry. As industry disperses, labor will follow it, when and if living facilities are provided, and decentralization of industry will become gradually achieved. Such a gradual development of a decentralized and protected industry would nullify the economical effects of such planning and construction. A deliberate move would bring hardship on people and havoc on national economy. Consequently, the over-all planning and construction would necessitate subtle reconstruction to eliminate the hardship quick and deliberate action would create. However, a dispersed and protected national industrial might is essential to our national security in the event universal peace is not achieved, and the problems involved should *now* be studied, and sensible planning underwritten by our people, industry and government.

"Strategical Industrial Survey"

In such planning, it might be suggested that a *Strategical Industrial Survey,* similar to the strategic bombing surveys of the war, encompassing all the problems and threats, be started. Of course, such a survey would require a great length of time, but its value to our nation would be proven if ever we are engaged in a war in the future. It should be started soon, too, because a nation cannot go underground rapidly, even in time of emergency, and, if it is not underground at the outset of a future war, a wartime exodus into the bowels of the earth would have similar effect as the proverbial lock on the barn door—too late.

Such a survey would necessitate consideration of the most important element of industry—its personnel. Along with housing and community facilities, stores, *et al,* protection similar to the industrial plant would have to be provided underground. Shelter and hospital facilities would be top priority items, the latter being of extreme value in any event. One of the great problems for hospitals faced with air raids was the evacuation of patients. Underground hospitals would have no such problem with which to contend.

At this point, it might be well to recognize the fact that all industries will not lend themselves to underground placement. Shipyards, certain types of mills, and many other industries cannot be drastically converted from their present situations without curtailment of productivity. However, the mere fact that the greater proportion of our industrial strength would be protected by natural fortification, would permit a maximum of surface protection for those facilities which would have to remain on top of the ground. Protection of similar nature to that provided by the underground, like that used in the German Sub Pens, could be constructed for partial protection. Addition of a thorough antiair or antimissile system about such facilities could provide an almost equivalent to underground protection.

Considering the idea of below-surface protection objectively, it might easily be assumed that the concept is strong only in the minds of those who were frightened too much in the recent war, and that the whole nonsensical business is much too vast and too costly even to be considered. Accumulative indifference to national welfare can well sustain such an assumption and the idea will remain just what it is—an idea. However, a casual scrutiny of the success of the lasting peace efforts and the question: "What are other nations doing along these lines?" along with evidences of what they are achieving will indicate that the matter cannot be dismissed that lightly.

History indicates that a strong, peaceable nation, secure in its defense, is one of the best safeguards of its own peace, and, possibly of the peace of the world. Relatively, if the United States is to be a strong, peaceable nation, it must remain ever strong; ever well defended.

This fact, in conjunction with the type of warfare which may be experienced in the future should peace efforts prove fruitless, plainly indicates it will be a happy day when the vitals of the United States can be shielded within the strong armor of our mountains, hills and rock.

Dropping U.S. industry into a protective hole in the ground and the accompanying moves will prove terrifically costly and inconvenient. There is no doubt about this, but, as proven by our past wars, precautions of this nature ignored in the past because of cost, have the remarkable faculty of proving themselves absolutely necessary in times of emergency, costing many times the peacetime estimates in money, and much more in blood.

The underground evolution can and should be achieved gradually, and in its achievement might give the rest of the world evidence of our caution and potential strength. It need not disrupt our way of life drastically, and may eventually, save that very way of life.

Should that horrific day come as some of our advanced *push-button* theorists predict, an underground industry would transform our country into a huge weapon—THE U.S.A. SUBTERRAIN—not dissimilar to the standard American Sub. Like the submarine, America would lie beneath not a blanket of water but of rock and soil, permitting the enemy to expend its power on U.S. topography, and then torpedo our might against an aggressor.

However, no matter what anyone says, if those men at the peace conference and the peoples backing them fail to create a lasting peace, and nations persist in warfare, the elevator boys of Fate and Intelligence, will open their doors to our nation, cryptically muttering: "GOING DOWN?"

26TH CAVALRY (PS) BATTLES TO GLORY

by Lieutenant Colonel William E. Chandler

(Editor's Note: Colonel Chandler, former S-2 and S-3 of the 26th Cavalry (PS) during the dark days of early 1942, continues his story of the Regiment's action against the Japs. Part I of this first complete and authentic history of the 26th Cavalry (PS), that appeared in the March-April, 1947, issue of the Armored Cavalry Journal, *ended with the Regiment being attacked by Japanese tanks. Captain Wheeler, Commander of Troop F, was able to give warning to the rest of the Regiment by opening fire uselessly upon the Jap tanks with his small-caliber weapons. The history continues.)*

PART TWO

WITH practically no warning, the 26th Cavalry found the leading Jap tank in its midst on the road. At this point the highway was narrow with a high bank on the south and a somewhat lower one topped with barbed wire to the north. While these barriers would have formed only slight obstacles in daylight they were considerably more formidable at night. Attempts by officers of the regiment to get their units off the road were thwarted by individuals becoming unhorsed in the dark by the wire or steep banks on the sides of the road.

Units not yet formed on the road milled about waiting for orders, while those on the highway floundered about trying to get off. Animals became excited and were lost amid the uproar of officers' voices giving commands. Colonel Vance and his staff were in the center of this confusion, and under fire from enemy tanks were unable to affect the situation to any degree.

The inevitable occurred. Down the road away from the Jap tanks toward Rosario was the only way to move. And, in that direction, the movement started in a jungle of disorganization complicated by riderless horses. This occasion was the nearest to a disorganized withdrawal that the 26th Cavalry ever came, and it was pretty near.

Casualties from the fire of enemy tanks were appalling. Many others were injured by terrified loose horses dashing about in the dark.

Major Thomas J. H. Trapnell, Commander of the Second Squadron, brought up the rear of the column with Colonel Vance. When he passed over a bridge about three kilometers west of Rosario he dropped off with Captain Wheeler and seized the Veterinary truck with one of the regimental veterinarians, Captain Mickelson. The three officers set the truck in the middle of the wooden bridge and calmly set it afire while under heavy machine-gun and 47mm gun fire from Jap tanks on the far bank. This calm act of courage saved the regiment from further pursuit and won the Distinguished Service Cross for the three heroic officers. Major Trapnell then mounted a scout car and proceeded along the column restoring order.

I, having been knocked from my motorcycle by the first of the riderless horses while returning from Rosario, stopped the head of the column and started it moving at a walk headed by a young Private First Class with orders to let no one pass him. This, coupled with Major Trapnell's efforts in the rear, those of the other officers scattered throughout the column, and the naturally superb discipline of the Filipino Scouts, halted what had all the ingredients of a panic and turned it into an orderly withdrawal.

As the regiment passed through Rosario in small groups, it passed within 20 feet of the remnants of Troop F whose patrols had been successively forced in from the mountain trails and were now desperately holding the enemy across the town square until the regiment could pass. Captain Wrinkle, Troop F Commander, who later lost his life on Bataan while leading a counterattack, assured me that he would remain and hold his position until the last units of the regiment cleared the town. He kept his word and pulled out only when assured by Colonel Vance and Major Trapnell that the tail of the column had passed. When he put up this last desperate fight, Captain Wrinkle had only about a platoon under his immediate command.

Major Jones had gone on ahead to the Bued River position and there stopped the mixed units of the command, reorganized them and placed them in position. When I arrived, this reorganization was well underway, and by the time Colonel Vance and Major Trapnell arrived at the tail of the column the new position was manned.

Strength reports were then called for and it was discovered that at midnight, December 22, all that remained of the 26th Cavalry was 175 effectives on the line. However, groups of men, who had been forced off the road west of Rosario by tanks and cut off, returned cross country and rejoined the regiment in considerable numbers through the next three days.

No accurate estimate of the actual casualties suffered in this particular action can be made, as the regiment was in action constantly for the next several days, but they were extremely heavy even after the last small groups rejoined the regiment days later.

Suitable defensive positions were not too plentiful in the country in which the regiment was now operating. The Bued River position was selected because the river offered a natural barrier, although at this season the river was by no means unfordable. The high bluffs offered a concealed position overlooking the river flats and the fields beyond. The river made a sharp bend to the south at this point and ran parallel to the road for almost a thousand yards, and the road south of the bridge ran between a high mountain cliff on the east and the wide flat river bed, easily fordable at any point, on the west. Within easy range of small-arms fire from concealed positions amongst the low brush on the far side of the river for several hundred yards was the road. It may be seen, therefore, that the only route of withdrawal from our position at the Bued River was exposed and definitely a weak point. This had a decidedly limiting effect on the length of time the regiment could remain in its position.

Orders were received from the Commanding General of the North Luzon Force at about midnight, December 22, that the old road to Baguio would be held open throughout the night of the 22-23 to enable troops in the Mountain Province, under Colonel Horan, to join our main forces in the Central Plain. By the time we received these orders, we had already passed the entrance to the Kennon Road, which was the new road to Baguio and Bontoc. The old road ran east of the Bued River from Agat to Camp One on the Kennon Road which had been the main route prior to the construction of the new highway. This old road was narrow and winding, clinging to the cliff above the Bued River for about three kilometers. It was seldom used, but was still passable for all types of vehicles.

Decision to Blow Bridge

In view of our orders, it was decided to hold our present position, blow the bridge in our immediate front and the Kennon Road Bridge at Camp One which crossed the Bued River and joined the new Kennon Road at the point where the old road came in. We would patrol the old road and Kennon Road for about a mile into the mountains with scout cars and thus keep the route open for the withdrawal of the troops in Baguio. We had a particular interest in these troops as our own Troop C under Captain Ralph Praeger was still north of Baguio covering the Cervantes Road.

First Lieutenant Russel Bowers, commanding the Scout Car Platoon since the death of Lieutenant George at Damortis, was given the mission of blowing the Kennon Road Bridge and patrolling the old road with a section of scout cars, a mission which he performed efficiently. Within 30 minutes the Kennon Road Bridge was impassable to any but foot patrols, and Lieutenant Bowers' scout cars were patrolling the old road to detect any attempt to cut it by hostile detachments fording the river. He had several brushes with dismounted patrols during the night, but at no time was the route seriously threatened by the enemy. Several bus loads of inductees from Baguio came down during the night en route to Manila for induction into the Philippine Army, but there was no sign of the regular troops under Colonel Horan. The road was held open for them until 10 A.M. December 23, but they never came through.

The Bued River flows from north to south from Camp One close to the mountainside and paralleling the old road to just north of Agat where it makes an abrupt jog to the west for a few hundred yards and then turns south again. The new highway bridge crossed the river at this jog, and it was here that the 26th Cavalry took up its position. Units of Brigadier General Selleck's 71st Division extended our line along the river bank to the south during the night, and had they remained there we should have been able to put up something of a fight in the morning. Just before daylight, December 23, however, they were withdrawn to the new position being occupied by the 71st Division near Sison.

Just after dawn December 23, General Selleck visited the regiment in person and ordered that we hold the Bued River crossing as long as possible to give him the maximum time to prepare his Sison position. Colonel

Pierce indicated the southward bend of the river and the exposed route of withdrawal, and pointed out to the General that with our flank support withdrawn the time that we could maintain our position was strictly limited by the time it would take the enemy to get strong combat patrols in the bushes across the river covering our route of withdrawal and that that could be at any time from then on.

This was clearly understood by General Selleck who told Colonel Pierce to remain until his position was threatened from the flank and then to fall back through the Sison position to Pozorrubio and there halt for rest and reorganization. Colonel Pierce ordered all motor vehicles to Pozorrubio at once and directed that horses be held mobile for immediate evacuation of the position. Patrols were sent out to the left flank and observers posted to report any signs of enemy activity on the opposite bank.

Contact was first made at the destroyed bridge in our front where an enemy bicycle patrol was ambushed and destroyed. Before the enemy had built up a strong firing line in this position, our patrols and observers reported considerable activity on our exposed flank, and Colonel Pierce ordered the withdrawal at 10 A.M. The movement down the exposed stretch of road paralleling the river was made under scattered small-arms fire from hostile units on the other side. A report was made to General Selleck at Sison of the estimated enemy strength and earliest probable time of attack, and the regiment proceeded to Pozorrubio for much needed rest and reorganization.

The regiment arrived at Pozorrubio at about 2 P.M. with a combat strength of about 200, but found that a considerable group of stragglers from Rosario and Damortis had assembled there with our combat trains. Other groups came in all through the day. It is to be noted with pride that these men, although dispersed in the dark by a surprise attack, and in general with no individual knowledge of the regiment's destination, had managed to extricate themselves and to locate their organization, and had brought with them their arms and animals.

The regiment settled down promptly for rest after its first hot meal since leaving Rosales on December 21, but was not yet destined to get much sleep. The Commanding General, 71st Division first directed that a Scout Car section patrol the highway from Binalonan to Sison, evidently fearing that his line of communications would be cut by infiltrating groups of Japanese. This patrol was sent out under Lieutenant Bowers, who later lost his life in performance of this mission. At about dusk a message was received from the 71st Division that the Sison line had been attacked heavily and that the 26th Cavalry's present position would be endangered by any breakthrough. The regiment was to move at once to the village of Binalonan in division reserve.

In compliance with these orders, the regiment moved out between 7 and 8 P.M. toward Binalonan and encountered units of the 91st Infantry moving into position east of Pozorrubio to support the 71st Division. The foremost elements of the regiment reached Binalonan at midnight, December 23, and by 1 A.M., December 24, were bivouacked in the western entrance to the town. The village was full of Philippine Army infantry, artillery, and service units of the 71st Division whose rear echelon was located there. General Selleck arrived while we were bivouacking, and told us that the Sison line was just barely holding and might break during the night, but that the 91st Infantry was moving in to strengthen the line. Although well behind the lines, the 26th Cavalry put out its own outposts to the north and west of the town to give timely warnings in case the enemy did break through the Sison line. The balance of the regiment dropped on the ground and slept for the first time in almost three days.

Bivouac Defense Ordered

I was roused at 5 A.M. on December 24, from heavy slumber by a messenger from First Lieutenant H. D. Mark, commanding the outpost north of the village, stating that his outpost was being overrun by enemy tanks which were proceeding south on the new highway to Urdaneta running just west of town. Even while this message was being delivered, firing could be heard from the direction of our second outpost to the west of town. Colonel Pierce was roused and a hasty defense of the bivouac area quickly organized in the shape of a reversed L along two sides of an open field just northwest of the Regimental Command Post. Troop B was placed on the upright of the L with its line running north and south facing west. Troop E, under Captain John Z. Wheeler, was placed on the bottom side of the L with its line running east and west facing north.

Clerks and other headquarters personnel reinforced by members of the Scout Car, Communications and Transportation Platoons formed a connecting link between the two line troops at the angle of the L within 25 yards of the Regimental Command Post, Troops A and F were held in reserve. These dispositions were dictated by the positions held in bivouac by the troops rather than by possible future employment of the units as squadrons; therefore, it turned out that one troop of each squadron was in action near its bivouac area rather than one entire squadron. These units found themselves immediately engaged in a heavy fire fight with enemy tanks and, although entirely without antitank weapons, they poured such a hail of fire on the enemy in the dim morning light that his tanks did not turn into the town but by-passed it and continued on toward Urdaneta. The tanks, however, were immediately followed by infantry in trucks who dismounted near the crossroads about 400 yards from our bivouac and attacked vigorously across the open field toward Troop E. Captain Barker, commanding Troop B on the northern leg of the L poured in such a murderous cross fire that

the enemy attack was thrown into confusion before it had moved 100 yards from its cover. Troop A, commanded by Captain Leland W. Cramer, was immediately thrown in on the right of Troop B in a strong counterattack which carried all before it until it reached the crossroads on the new highway when it ran into more enemy tanks from the north and was finally thrown back almost on line with Troop B where it halted and dug in.

This vigorous opposition stopped the enemy advance and the action quieted down for awhile. It was now 7 A.M. and Colonel Pierce and his staff, some of whom had been filling gaps in the line with rifles and machine guns during the excitement, had time to take stock of the situation. The first question that occurred to every one was, "What has happened to the Division Command Post and all the troops that were in town last night?" No messenger from Division had arrived during the preceding rather hectic hours since the action began. I was sent back to report the regiment's situation to General Selleck, secure any information possible and get the Commanding General's orders for the regiment.

When I reached the main square of Binalonan, I found it deserted except for abandoned buses, trucks and other material. There was not a human being in sight, not even a Jap, which was fortunate as they could have come in from the north at any time up to then. The Japanese tendency to pound straight ahead after an attack is launched must have been uppermost in that Jap commander's mind, and he kept pounding away at the opposition offered by the 26th Cavalry when the whole flank was open to him. I decided that this state of affairs was not apt to continue indefinitely and after a short but futile search for some representative of the 71st Division Command Post I hurried back to report to Colonel Pierce. Troop F was sent immediately to secure the bridge on the east of town and to cover the northern approaches thereto. The regiment was too heavily engaged at the moment to attempt to withdraw without tremendous casualties, but we could use our last reserve to cover flank and rear and hope for a break later in the day. The trains were sent to the rear over the bridge and through Asingan to Tayug and told to await further orders there.

Meanwhile the Japanese continued to launch repeated attacks on our front with unbelievable stupidity. The attackers would be mowed down by our trained marksmen armed with M-1 rifles and machine guns before they had proceeded halfway across the field, but the fanatical Japs would try again. One sustained attack preceded by tanks would have rolled over our lines like a steam roller but whenever a tank poked its nose out of the bamboo thicket near the crossroads it was met by a hail of well aimed small-arms fire and while there wasn't an antitank weapon in the lot the Japs didn't know that and were hesitant to expose their tanks. They must have finally decided we were too tough for them and the attacks ceased about 10:30 or 11 A.M. with most of the enemy armor by-passing us toward Urdaneta. Jap dismounted units remained in place and kept our lines under heavy fire from safely covered positions.

At about this time a survivor of Lieutenant Bowers' Scout Car Section, who had come in some time before but had been involved in the scrimmage, reported that Lieutenant Bowers, while preceding his section on a motorcycle on the Binalonan-Sison road the night before, had run into the Jap tank column just before daylight. Lieutenant Bowers when last seen was struggling with a group of Japs and firing with his pistol. His companion, a young scout soldier, had managed to get away in the dark and in accordance with Lieutenant Bowers' prior orders had rejoined the section and managed to extricate it during the confusion of Lieutenant Bowers' struggle, and had reached Lieutenant Mark's outpost only seconds in advance of the Jap column. Nothing was ever heard of Lieutenant Bowers again.

General Wainwright, at 11:30 P.M. accompanied by his G-3, Colonel Frank Nelson, and his aide, Major Tom Dooley, arrived via the east road and was surprised to find us in action. He had expected to find the 71st Division Commander in Binalonan. When he found the town deserted except for Troop F covering the northern and eastern approaches to the town and learned the situation from Major T. J. H. Trapnell, Second Squadron Commander, he insisted on coming forward in his Packard sedan to the Regimental Command Post although that spot was far from healthy at the moment, being under direct small-arms and 47mm fire from the enemy less than 400 yards away. With characteristic coolness he had his sedan parked behind a near-by shack and strolled over to chat with Colonel Pierce while Colonel Nelson and I exchanged the latest information.

Even Colonel Nelson did not know exactly where the 71st Division line was, although it was fairly obvious now that he was well in front of it. The Japs had launched repeated attacks against the Sison line the night before and had evidently pierced it with an armored thrust just before daylight. Since then Headquarters North Luzon Force had received no word. Colonel Nelson also told me at this time that General MacArthur had put WPO 3, the old war plan, into effect the night before.

This plan, well known and rehearsed by all units prior to the war but held in abeyance until now, called for a withdrawal into the Bataan Peninsula where we would hold out to the last possible moment. While more or less expected, this news was somewhat of a blow. It obviously meant that all chance of a major counterattack on our part was gone. Colonel Nelson marked the daily phase lines of the withdrawal on my map and stated that the North Luzon Force must at all costs hold the enemy north of San Fernando, Pampanga, until the South Luzon Force moved through Manila and into Bataan. These daily phase lines were desig-

nated D-1 to D-5 with the last two to be held as long as possible, exact dates for withdrawing from them not being given. It all depended on the progress of the South Luzon Force.

General Wainwright and his party remained at the Regimental Command Post for some time. Word of his presence spread up and down the line like wildfire and the men settled down to their sharpshooting of incautiously exposed Japs with renewed confidence. The General and his party departed sometime after noon in the same leisurely manner in which they had arrived. We could not even disengage a scout car to escort him, but Major Trapnell sent word that the eastern exit from the town was still open.

Field Artillery Unit Lost

Shortly after General Wainwright's departure, Lieutenant Vanderlester of the 24th Field Artillery (PS) arrived over the same route with two 75mm self-propelled guns, having been sent forward from Tayug by General Selleck. Major Hubert Ketchum, whose First Squadron was now bearing the brunt of the Japanese fire and who had located several enemy tanks massing under cover in his front, feared a renewed attack, this time preceded by tanks. He asked for and received Lieutenant Vanderlester's two guns and departed with them towards his squadron on the right flank. Just what happened is doubtful, as there are no survivors, but within a few moments we heard two shots from the 75s and that was all. They must have gotten ahead of or too far to the flank of our line and run into an ambush. Neither Ketchum, Vanderlester, the two guns or any of the crew were seen again.

The Regiment held on hoping to hear from Major Ketchum, but as the day wore on it became obvious that if we were to extricate ourselves from this position it must be done at once. A lull in the firing had developed, and it seemed that now was the time. Consequently at about 12:30 P.M. Troop E was withdrawn from the line, under cover of increased fire by other units, went to the rear to saddle and then return to the line to take over the fire fight, while Headquarters Troop and Troop B in turn slipped out of the line to saddle and return. Troop A on the right had to cross an open road in full view of the enemy to reach its horses; therefore, it was ordered to move out of the line, saddle and proceed at once as the advance guard of the regiment on the road to Asingan. Troop E was to withdraw next, followed by Headquarters Troop and Troop B in turn.

The entire maneuver was carried out with perfect timing and deception. The enemy suspected nothing until Troop A was seen crossing the road, and this was covered by a perfect hail of fire from all other units. By the time the Japs were ready to launch their attack, all units were on the road except a rear guard of Troop B which was just leaving as two enemy tanks moved out of a bamboo thicket near what had been Troop B's right flank and Troop A's left. Lieutenant Seymor, Troop B, and another officer from the regimental staff waited behind a ditched ammunition truck until the foremost tank had almost reached them and then threw three hand grenades each over the truck in front of the tank and ran for their horses. These grenades, while harmless to the tank, evidently caused him to pause and wait for help. This permitted the regiment to pull out of town in perfect order, covered by Troop F at the eastern bridge. The last men to leave the town were Colonel Pierce and Colonel Vance, on foot and leading their horses. Troop F remained at the bridge for about an hour and then left the Scout Car Platoon there in vain hope that Major Ketchum and Lieutenant Vanderlester might show up and to delay the enemy should he pursue. No pursuit was made, however, and the Scout Cars abandoned hope of seeing Ketchum and Vanderlester and moved out to Asingan unopposed at about 5 P.M.

Casualties in this action were again heavy. We had lost Major Ketchum, Lieutenants Vanderlester and Bowers, and Lieutenant H. D. Mark, who was killed making a singlehanded attack on a hostile tank that was cutting his platoon to pieces. Dead and wounded among the enlisted personnel were much heavier than we could afford with our reduced strength, and no relief appeared in sight. However, we had held up all enemy forces, except a tank column which had by-passed us toward Urdaneta, from 5 A.M. to about 3:30 P.M. and prevented their movements eastward until after 5 P.M. This gave time to organize the D-1 line along the Agno River.

The regiment moved toward Asingan and was forced to repair one bridge, destroyed by PA Engineers, for our scout cars, finally reaching Tayug at dusk, having blown our repaired bridge and another at Asingan behind us. Fortunately the bridge at Tayug was mined but not yet destroyed so that we were able to cross the Agno dryshod.

We found considerable confusion at Tayug. The 71st Division had been hit so hard at Sison that it had scattered badly. Lieutenant Colonel George Vanture was organizing a defense of the river with scattered bits of many organizations. The 91st Division, however, was occupying the line to the west in good order. Brigadier General Stevens, 91st Division Commander, was in command of this section of the line and he ordered the 26th Cavalry into the town to rest. We would have no part of the defense that night, but would be prepared for further action the next day. The regiment again bivouacked amongst the houses of a barrio and slept the sleep of exhaustion, not failing, however, to again post our own outposts, the events of the last twenty-four hours having proved more decidedly than ever the wisdom of never depending wholly on anyone but oneself.

Colonel Pierce on December 25, was called in conference by General Stevens who stated that the 26th

Cavalry had been attached to the 91st Division for the next operation. The 91st Division, now occupying the line of the Agno River, was to withdraw to D-2 commencing at 11 A.M., December 25, leaving a shell on the river until dawn. The 26th Cavalry would hold the river at Tayug covering the withdrawal of the 91st Division and protecting the right flank of the North Luzon Force. One company of tanks would be attached to the 26th Cavalry.

The day was spent in reorganizing the regiment, contacting adjacent units and planning the forthcoming operation. We took Colonel Vanture's line on the river north of Tayug late in the afternoon with the Second Squadron. Troop B was placed to the southwest of town to cover a possible breakthrough of the 91st Division shell on our left flank and combat patrols were sent to the northeast toward Natividad and San Nicholas. Troop A and Company C, 192d Tank Battalion, were held in Tayug as regimental reserve. A patrol was sent to Asingan in the early afternoon and contacted Japanese units repairing the bridge we had destroyed there the previous evening. Lieutenant Spies, with some scout cars, prepared about eight bridges and culverts between Tayug and San Quentin for demolition during the afternoon of December 25.

The enemy pushed in our forward patrol at 7 P.M. and attacked the Second Squadron which maintained its position without difficulty. Enemy tanks attempted to ford the Agno to the east but were stuck in the soft bottom. Sporadic firing and weak frontal attacks by the enemy continued through the night while strong Japanese forces attempted to move around both flanks. Contact was made with the 91st Division shell on our left flank whose personnel gradually closed in on the Second Squadron, but nothing could be done about extending our right flank due to lack of troops. The only possibility was to keep our flanks covered by patrols and to pull out at the last possible moment.

Well Executed Withdrawal

The position was enveloped on both flanks by 2 A.M., December 26, and the regiment withdrew according to prearranged plan in a perfect example of timing. The Second Squadron pulled out of its position at a trot receiving hostile fire from both flanks and rear in so doing. As the Second Squadron passed through Tayug Regimental Headquarters fell in, then Troops A and B as the column passed previously designated points and then the tank company, and finally the Scout Car Platoon which trailed the regiment into San Quentin blowing eight previously mined bridges en route. It was a beautiful exhibition of careful planning, timing and execution by disciplined troops, permitting the last moment of delay to be extracted from the operation.

The regiment arrived at Umingan at 5:45 A.M., December 26, and withdrew behind the 91st Division line for rest. Orders were waiting from the North Luzon Force Commander directing that the 26th Cavalry withdraw to Santa Rosa, Pampanga, in North Luzon Force reserve. Study of the map and application of time and space factors clearly indicated that the regiment could not reach Santa Rosa on horseback ahead of the withdrawing divisions unless day and night marches were made. Daylight movement was extremely dangerous due to the enemy's complete command of the air, and in any event our animals had been on the go constantly since December 13, and were in no condition for forced marches. Colonel Pierce and myself, therefore, took a trip to North Luzon Force Headquarters at Bamban while the regiment rested in concealed bivouac during the day. General Wainwright's Chief of Staff, Colonel William P. Maher, consented to change the destination of the regiment to Mexico, which was behind phase line D-5 and was to hold for several days. This we hoped would enable us to get a day or two of rest to refit and shoe our horses, some of which were getting in really bad shape.

In accordance with these revised plans the regiment moved out of Umingan at 7:15 P.M., December 26, and arrived in Munoz 2:30 A.M., December 27, where we again slipped behind the lines of the 91st Division whose troops had passed us in trucks during the night. We left Munoz at 7:15 P.M., December 27, and arrived at San Isidro 6:30 A.M., December 28, a long and exhausting march for animals and men in poor condition, but at last the regiment was well behind the front of the 91st Division. Troop G rejoined the regiment at San Isidro from Bongabong where it had been since early in December.

Departure from San Isidro was at 7:30 P.M., December 28, and the regiment arrived at Mexico at 1:30 A.M., December 29, where Lieutenant Cunningham and his Scout Car Section were waiting. At last the regiment was all together again except for Troop C which now must be considered lost in the Mountain Province. We later heard of the excellent work performed by this troop under Captain Ralph Praeger who refused to give up merely because he was cut off from support. His raid on the enemy-held airfield at Tugugerau is a classic.

At noon, December 29, Colonel Nelson, G-3 North Luzon Force, stopped at our bivouac with orders that we were to move on Porac that night. This was the last blow; men and horses were exhausted, equipment was damaged due to the past week of combat and movement, and we had just started a basic reorganization to make two full-strength troops of the three decimated ones in each squadron. Colonel Nelson was shown the situation on the spot and he returned to North Luzon headquarters with me to plead for some delay. Colonel Maher was considerate as ever, but said that a 24-hour extension was absolutely all he could allow us. It would have to do.

The regiment left Mexico at 7 P.M., December 30, and arrived in Porac at midnight. On December 31, the

reorganization of the regiment was completed. Troops E and F, which had suffered the severest casualties, were combined into one troop under Captain Wheeler and with Troops A and G formed the three-troop horse squadrons under Major T. J. H. Trapnell. Troops B and Machine Gun were dismounted and formed into a motorized unit mounted in buses and trucks under Captain Joseph Barker, Jr. Headquarters, Headquarters and Service Troops remained the same with vacancies filled by dismounted men from Machine Gun and B Troops. This makeshift reorganization was necessary because no replacements of men or animals were available. Some Bren gun-carriers destined for Singapore but dumped in Manila at the beginning of the war were offered us and were snapped up for the motorized units. These arrived from Manila late on December 31, under Captain Gochenour, Regimental Veterinarian, Lieutenant Caruso and a detail previously dispatched.

Orders arrived on January 1, 1942, attaching the regiment to the 21st Division (Philippine Army) and we left Porac at 7:00 P.M. and marched to San Jose, Pampanga, arriving at 8:45 P.M. the same day. General Capinpin's 21st Division held a line from Porac halfway to Guagua where he joined with Brigadier General William E. Brougher's 11th Division. The mission of the 26th Cavalry was to cover the left flank of the 21st Division toward the Zambales mountains. Both the 21st and 11th Divisions had received orders that they must hold for five days at all costs to permit the organization of defensive positions in Bataan. The South Luzon Force had completed its withdrawal into Bataan the night of December 31, aided by the 21st and 11th Divisions' stand north of San Fernando and by the 91st Division's to the west. However, it was necessary now to prepare lines in Bataan to plug the entrance to our hole and the 21st and 11th were ordered to provide the necessary time if it cost every man in both divisions.

The 26th Cavalry performed its mission of flank protection by holding the regiment at San Jose and sending one troop with a pack radio to the left of the 21st Division and thus plugging the gap between the 21st and the mountains. Hourly reports were made by radio and twice daily by written message.

21st Division Repulses Attacks

On January 2 and 3, the 21st Division repulsed repeated attacks on their front, but no serious threat was made against its flank and our troop there did not need to call for help, consequently the balance of the regiment caught up with much needed rest. The Japanese, however, launched a determined attack on January 4, which pierced the 21st Division line and forced a withdrawal to San Jose, Bataan, but contact was maintained with the 11th Division southwest of Guagua. Troop E-F had relieved Troop G on the flank of the 21st Division on the morning of January 4, and when the withdrawal was made Troop E-F moved cross country to its new position. The 26th Cavalry covered the withdrawal of the 21st Division and reached Dampe on the left flank of the Division's new line at about midnight.

On January 5, the canefields in front of the 21st Division were burned, but the enemy failed to follow up his success, probably for the reason that he was making even better progress against the 11th Division. Strong enemy forces had outflanked General Brougher's troops by moving through the swamps on his right flank and were now threatening his line of communications into Bataan. This development forced the withdrawal to take place at once and both divisions fell back to the Layac Junction Bridge during the night of January 5 and 6, and crossed over covered by the 26th Cavalry which finally crossed the river about 1:00 A.M., January 6. The bridge was immediately blown by North Luzon Force engineers under the eyes of General Wainwright.

The 26th Cavalry anticipated a period of rest behind the lines in Bataan, but was doomed to disappointment. Even before crossing the bridge at Layac Junction, orders were received from General Wainwright outlining the new organization of troops for the defense of Bataan and assigning a new mission to the 26th Cavalry. The troops in Bataan were divided into two corps, I Philippine Corps on the west coast commanded by General Wainwright and II Philippine Corps on the east coast commanded by Major General George M. Parker. The new line was to run from Moron on the west coast to Abucay on the east. This line, unfortunately, was not continuous being divided in the center by Mt. Silanganan and Mt. Natib, both well over 3500 feet high and with precipitous jungle clad slopes.

Contact between the two corps was practically nonexistent near the front as patrols required several days to negotiate the difficult terrain between the two corps and the detection of a hostile force penetrating those gaps was problematical. It was some consolation, however, to feel that any such force could not be large or carry very heavy weapons. We had yet to learn the full measure of determination and endurance of our foe! While the Moron-Abucay line was being organized and occupied a temporary line through Culis and Hermosa, parallel to the Olongapo-Dinalupihan road was established by the remains of the 71st Division and 31st Infantry (U.S.). The 26th Cavalry's mission was to cover the left flank of the 31st Infantry (U.S.) whose line stretched from the main road just north of Culis nearly to the mountains.

In compliance with these orders, the regiment, upon crossing the bridge at Layac Junction, moved immediately along an unimproved road through Culis behind the 31st Infantry's line to their left flank, arriving there about 3:30 A.M., January 6. The country was new to all members of the regiment and reconnaissance was impossible in darkness; therefore, the unit was bivouacked in contact with the left unit of the 31st Infantry and local security measures were taken. Shortly after

daybreak Colonel Vance and Major Trapnell took patrols out to make reconnaissance preliminary to making the regimental plan of action. The regiment meanwhile settled down to get a few hours rest, but succeeded in getting very little due to enemy artillery fire which was searching for a near-by battery of ours. Several animals were killed or wounded but no men were lost.

Major Trapnell returned shortly after noon and Colonel Vance about 3:00 P.M. Both had found suitable locations for the regiment, and after some discussion it was decided to follow Colonel Vance's plan which called for the regiment to bivouac about two and one-half kilometers west of our present position and to establish a standing screen of patrols from the left of the 31st Infantry to the mountains with the bulk of the regiment centrally located and ready to move to any threatened point on the screen. In furtherance of this plan, the regiment moved out at about 4:00 P.M., leaving Captain Barker's motorized unit to provide local protection for the 31st Infantry's flank, as the trail from that point on was impassable to normal motor traffic. Four scout cars accompanied the regiment for communication and staff work. This proved a costly error, as the only practicable trail for vehicles of any type was the one we were on and it was later closed by the enemy.

Colonel Pierce at 8:30 P.M. sent a message to the 31st Infantry Commander requesting that we be kept informed of the situation on his front and of the road out of our position. The reply was, "Estimate road will be open until daylight." Troop A had by this time established the screen as planned and the regiment settled down for the night.

Contact With 31st Infantry Lost

Contact was lost between our patrol on the right and the 31st Infantry during the night, and when attempts were made to regain it, our patrol was fired on in the darkness. Attempts to contact the 31st Infantry or 71st Division by radio were fruitless, but at about 1:30 A.M., January 7, a radio message from Captain Barker was received, "Believe road closed by 3:30 A.M. Am moving out." This message naturally caused renewed efforts to contact the 31st Infantry or General Selleck's headquarters, but without result. At 2:30 A.M. a code message was received from the 31st Infantry, but it was impossible to decipher it in spite of every effort of Captain Jones and his code experts. It later developed that the code of the day had been compromised and a new key-phase had been issued, but no one had thought to inform the 26th Cavalry of this important fact. Repeated calls to 31st Infantry and 71st Division resulted in only more gibberish and further attempts at physical contact drew heavy fire. Feeling that he was not justified in abandoning his mission on nothing more than a message from one of his own junior officers, Colonel Pierce decided to remain in his present position until daylight and then reestablish contact.

A patrol under First Lieutenant W. P. Leisenring reported at 4:00 A.M. that the 31st Infantry had apparently withdrawn from its position. He had visited our bivouac of the previous day and found no one there. Colonel Pierce ordered our four scout cars to make a dash for the main road at Culis as this was the only way out for them. Mr. Franz Weissblatt, a United Press correspondent who happened to be with the regiment, was advised to accompany the scout cars as he was not a seasoned horseman and the probabilities were that the regiment faced several gruelling days in the mountains trying to rejoin our forces on the Abucay line. Mr. Weissblatt accepted the advice and was in the forward car when they ran into a Japanese ambush at Culis. The first three cars were destroyed, and Mr. Weissblatt severely wounded and captured. His subsequent experiences form a tale which it is hoped he will himself some day write. The last car got away and returned to camp with word of the ambush.

It was now obvious that the regiment was cut off behind the enemy lines and must either find its way by unfamiliar mountain trails to our new line at Abucay Hacienda or chance fighting our way through such of the enemy as were between us and our own troops. Knowing practically nothing of the strength or location of the enemy, but being only too familiar with the small strength and exhausted condition of the horse squadron, which was all that remained to him of his regiment at that moment, Colonel Pierce elected to try the mountain trails.

No one in the regiment was familiar with the trails, although the S-1, Major Harry J. Fleeger, and one noncommissioned officer had made a trip from Abucay Hacienda to Dinalupihan some two years before. Jungle trails change considerably in two years and neither was confident of the route, but the regiment started off generally southwest at 7:00 A.M. About 12 Noon the advance party was on top of what appeared from the map to be Mt. Santa Rosa and all trails petered out into trackless jungle. Abucay Hacienda, our destination, and Moron, on the west coast, could be plainly seen a few kilometers away, but they might as well have been in China. It was obvious that by abandoning our horses and proceeding on foot, cutting our way through the jungle, we could reach Abucay Hacienda by the next day but, of course, the idea was not to be considered except as a last resort, and the back trek down the mountain was started. By nightfall we were within a few kilometers of our bivouac area of the previous night and it was decided to return there and make a new start the next day. Patrols were sent out toward the old position of the 31st Infantry and found Japanese looting the battlefield.

A new start was made at daybreak, January 8, and when a safe distance was placed between us and the enemy a halt was made while five patrols were sent out on different trails in an attempt to find one which

would lead us to Abucay Hacienda. While waiting, a mule, which had been wounded by the shelling on January 6, was killed and roasted. For most of the men this was the first food they had eaten since the evening of January 6. The animals had had nothing since the morning of January 7, except what they could snatch from the trees along the trails.

Two of our patrols ran into a camp of Filipino refugees early in the afternoon and were shown a trail which supposedly led to Abucay Hacienda. Accordingly, the regiment set out at about 3:30 P.M. and reached the outpost line of the 51st Infantry just before dusk. Negrito guides were furnished by the 51st Infantry, and the regiment was led over almost impassable trails to a deep gorge whose precipitous sides seemed absolutely impossible to scale. Captain William M. Cummings, an officer of our regiment on detached service with the Philippine Army battalion in that area, told us that the Quartermaster Pack Train, that was supposed to supply him, had been trying for three days to find a way to cross but without success. Meanwhile, he was packing every bit of rations or equipment used by his battalion on the backs of his men. Colonel Pierce decided to halt for the night and attempt the crossing of the gorge by daylight. Captain Cummings had no food to spare, but the men found stacks of upland rice in the near-by fields, left from the last harvest, and the animals had forage of a kind.

At daylight, January 9, Major Fleeger went ahead with an orderly to find a crossing of the ravine and with considerable difficulty managed to reach the other side where, by a fortunate coincidence, he ran into First Lieutenant Robert Cunningham, Platoon Leader of the Scout Car Platoon. Lieutenant Cunningham reported that Captain Barker, with his motorized unit of the regiment, was bivouacked about three kilometers west of Pilar on the Pilar-Bagac road and that he had sent several patrols to likely spots where he thought that the regiment might possibly debouch from the mountains. Lieutenant Cunningham had arrived in time to see Major Fleeger's head appear over the edge of the ravine. Major Fleeger immediately sent Cunningham back to Barker with orders to get food and forage to this point as soon as possible while he returned to guide the regiment over the ravine.

It took until 2:00 P.M. to get the last animal across the gorge, a day of herculean labor for exhausted men and animals. Zigzag trails in the precipitous slopes of the ravine had to be cut by hand, undergrowth had to be cleared away with bolos and in some cases animals had to be drawn over the worst places by ropes. On several occasions animals that lost their footing near the top rolled almost to the bottom before being stopped by the tangle of brush on the sides of the ravine. Every man and animal and every piece of equipment, including two mule-killing pack radio sets, finally reached the top, however, and collapsed in utter exhaustion.

Captain Walter J. Buboltz, regimental S-4, arrived about 3:00 P.M. like a ministering angel with two truckloads of cooked rations and forage. Men and animals were soon engaged in the pleasant and long neglected task of filling their stomachs.

As soon as they had eaten, Colonel Pierce and I took Captain Buboltz's car and reported to Headquarters I Corps, to which Lieutenant Cunningham had said the regiment was now assigned, for orders. We were greeted at headquarters with enthusiasm as we had been written off as lost by all but the General himself, who had maintained that the regiment would show up somewhere, sometime. Our orders were to move at once to Bagac where we were to recuperate and refit.

The regiment moved at 7:00 P.M. on January 9, from the gorge to Captain Barker's bivouac west of Pilar on the Pantingan River, while Captain Barker moved his motorized unit north of Bagac and prepared a bivouac for the horse elements. During the night orders were received to send one troop to Moron where the 1st Division (Philippine Regular Army) needed a reconnaissance unit. In spite of the condition of men and animals, Troop G moved out at dawn, January 10, and reached Moron by nightfall. The balance of the regiment moved to Bagac at dusk, arriving shortly after midnight.

From January 10, to January 15, the regiment remained in bivouac about one kilometer north of Bagac engaged in recuperation, shoeing of animals, and familiarization of officers and noncoms with the surrounding terrain by numerous reconnaissance patrols.

Troop E-F on January 15, was sent to Moron to give Troop G an opportunity to get some rest and to reshoe its animals. Troop G had been almost constantly on patrol since its arrival at Moron, the evening of January 10, and had reported enemy in considerable numbers landing at Mabayo and moving overland. Early January 16, this enemy force attacked Moron and drove out elements of the 1st Division (PA). After several fruitless counterattacks with 1st Division troops, General Segundo ordered Troop E-F to attack Moron and drive out the enemy. Captain Wheeler attacked and drove the enemy beyond the river north of the town on the west, but was not able to completely dislodge those on the east. First Division units followed Troop E-F into the town and took over. Captain Wheeler withdrew his troops, but was unable to pull out about 25 horses which had been left near the southeastern edge of town. Approaches to these animals were covered by enemy fire. Troop E-F had suffered considerable losses in the action and General Wainwright, who had witnessed the action, ordered Captain Wheeler to return to Bagac; the attachment to 1st Division was terminated. Captain Wheeler arrived at the Bagac bivouac before daylight January 17, with his troop pretty well exhausted by their heavy fight and long march and much depressed over the loss of their animals.

(To be continued)

26th Cavalry (PS) Of Today

*by Major John C. Wachtel**

In conjunction with the three-part history of the 26th Cavalry (PS) entitled "26th Cavalry (PS) Battles to Glory" by Lieutenant Colonel William E. Chandler (of which the second part appears in this issue of the Armored Cavalry Journal), this article on the present 26th Cavalry (PS), which has been redesignated the 12th Cavalry Reconnaissance Troop (PS), is published. The 12th Cavalry Reconnaissance Troop is a part of the 12th Infantry Division (PS).

TROOPERS of the 26th Cavalry—the handful that remained after the Binalonan-to-Dinalupihan delaying action and the defense of the Orion-Bagac line—might reasonably have expected their final, desperate stand near Trail 20, Bataan, in April 1942, to have been the finish of that gallant outfit. For the horses, and for many of the officers and men, it was just that—the end of the last trail—but during the past year a portion of the 26th Cavalry, with a new unit designation, has been riding the roads and trails of the Zambales Mountains in the upper Stotsenburg reservation—in machine gun jeeps and armored cars!

The ex-horsemen have changed shoulder-patches (they now wear the Golden Carabao of the old Philippine Division) and they have changed their name to 12th Cavalry Reconnaissance Troop (Mechanized), but they're back on the old stamping ground carrying on the traditions and missions of the historic horse regiment which sired them.

On Army Day a year ago the War Department, through Headquarters, AFWESPAC, reactivated and redesignated the Second Squadron, 26th Cavalry, Philippine Scouts as the 12th Cavalry Reconnaissance Troop, a part of the 12th Infantry Division (PS), which itself was the reactivated and redesignated Philippine Scout Division that General Jonathan M. Wainwright had commanded prior to the start of the war. Young Scouts, some of whom were the sons of men of the old regiment, were assigned to the troop and four of its five officers were former enlisted men of the 26th who had fought throughout the Luzon defense campaign.

The troop, stationed at Camp O'Donnell, Tarlac, originally was equipped with M3A1 scout cars due to shortage of M-8's in the theater, but the standard armored car was added early this year. Due to supply difficulties the troop vehicular strength has not yet reached T/O levels; however, in spite of shortages the troop is now operational and is carrying out a number of missions in addition to regular training. These missions include:

Patrol of the boundary of the Stotsenburg reservation from Capas, Tarlac south to the Bamban River Bridge, thence west to Hill 29, to prevent trespassing and stealing of timber and bamboo. Patrolling of the O'Donnell excepted area within the reservation for the same purpose. Interior reservation patrolling for terrain reconnaissance and to check periodically for presence of Hukbalahap armed bands which occasionally raid surrounding towns and have on at least one occasion, bivouacked in the Reservation near the

*12th Infantry Division (PS).

site of Colonel Thorpe's guerrilla hideout during the Japanese occupation days.

The troop's patrol activities take half the unit into the field a week at a time. Vehicles undergo daily and weekly maintenance under field condition, and in spite of the war-weary cars the deadline is comparatively low.

And life is not dull! A patrol led by Lieutenant Felipe Francisco, while reconnoitering the Malasa area for squatter communities, encountered eight armed men carrying ammunition boxes. This group was sighted at a range of 1,000 yards across a ravine and before Lieutenant Francisco could close in the group had faded into the jungle. On another occasion a detail of two machine gun jeeps of the troop accompanied Division G-2 on an observer liaison with the Philippine Army when Brigadier General Mariano Castaneda led his Military Police Corps troops onto the reservation to eject and destroy a large force of Hukbalahaps. Although contact with the insurgents was not made, the troopers had thoroughly enjoyable outing, including giving General Castaneda a cross-country jeep ride which left that officer impressed (physically as well as mentally) with the traditional cavalry mobility!

Platoon Sergeant Cristuto Lopez' patrol, quite inadvertently, came under artillery fire on February 21. By misplotting the artillery danger area on his map, Sergeant Lopez took his jeep and scout car into the 23d Field Artillery impact area and became the center-point of a two-way bracket by a battery salvo. Sergeant Lopez' report said, in part: "On their way to Peak 29 the jeep and scout car were nearly hit by the sailing of the 23d Artillery shells. The shells exploded front and rear, right and left, five paces from the vehicles. Due to the fast moving of the vehicles they were able to escape, where the rounds exploded. And right now the dismounted outposts were transferred."

As a "graduation exercise" upon completion of phase II, mobilization training, the troop made a practice march and bridge and road reconnaissance of the Bataan-to-O'Donnell Death March route. Led by Captain Frank H. Young, American mestizo and holder of the distinguished Service Cross for his part in the Bataan campaign, the troop revisited the locations in which the 26th Cavalry spent its last days: Trails 10 and 20, the Alongan River, Mariveles and Cabcaben. For the young Scouts of the troop it was a trip into history. Lieutenant Eulalio Arzaga pointed out the bridge near Dinalupihan that he had helped dynamite after the regiment had withdrawn across it, and Lieutenant Francisco showed his men the spot near Abucay where the scout cars of his section had been ambushed by the Japs as they dashed for the road at Culis.

Present officers of the Recon Troop who served in the ranks of the 26th Cavalry during the war (and who may be remembered by officers of the Service who served with that historic outfit) are Lieutenant Francisco, Lieutenant Arzaga and Lieutenant Felipe Fernandez, formerly of Troop E. Major Juan Dalipe, formerly Regimental Supply Sergeant, though not serving with the troop, is a member of the 12th Division.

And the 26th tradition goes on from father to son: Staff Sergeant Porfirio C. Gascon, son of Sergeant Melchor Gascon who retired from the 26th Cavalry, is troop clerk of the new unit.

The 12th Cavalry Reconnaissance Troop will continue its efforts to uphold the standards and traditions of the 26th Cavalry. The troop files contain a letter written by Brigadier General Clinton Pierce at Ft. Riley, Kansas, in June 1946—a permanent reminder of the Reconnaissance Troop's heritage:

"1. As a former commander of the 26th Cavalry (PS), it is with extreme pleasure and interest that I have found out about the incorporation of a part of the old regiment in the 12th Division.

"2. In any organization of the U. S. Army to be organized and stationed in the Philippine Islands the 26th Cavalry (PS) has earned its right of representation.

"At Damortis, the Bued River, Binalonan, Tayug, Pio and Culis Junction the 26th Cavalry fought as a unit, using its mounts to provide the battlefield. At Moron one troop of the Second Squadron used its mounts to initiate an attack against the Japanese forces holding the town, and pushed the enemy north, out of the town and across the Batala river. In Bataan, where the terrain no longer permitted mounted maneuver and forage was not available the horses of the 26th Cavalry (PS) were turned in and eventually used as food for the Bataan garrison. Using the remaining scout cars of the regiment and adding Bren gun carriers, trucks and busses the reorganized 26th Cavalry carried on in its fine tradition of combat on Bataan on the west coast and finally on the east coast during the last heartbreaking days of the capitulation. No other unit in the force of General MacArthur or General Wainwright excelled in the fighting spirit and dogged tenacity of defense displayed by this fine regiment. To quote from a letter sent me by General Wainwright, referring to the 26th Cavalry (PS), 'From December 22, 1941, until about January 9, 1942, this devoted little band of horsemen was in action almost daily, always gave a good account of itself and suffered heavy casualties. During these trying days, it was the most reliable unit under my command, and so remained during the defense of Bataan except for the two Philippine Scout Infantry Regiments, which were its equal, but in no way its superior.'

"3. What higher praise could a regiment receive? And so, after the terrible days of the invasion and occupation it is most fitting that the 26th Cavalry (PS) will ride again even though designated as the 12th Cavalry Reconnaissance Troop, Mechanized, of the 12th Division. My great respect and deep thanks go to the old horse regiment and its survivors and to the glorified dead of that band of horsemen goes the salute of a Nation for a task well done."

Philippines' Own West Point To Rise Anew

by Major C. B. Rigor*

THE site of the erstwhile Philippine Military Academy, that counterpart of America's pride of the Hudson, is in shambles. In the wake of allied bombings and the sudden evacuation of the wantonly destructive Japs in January 1945, the summer capital of the Philippines, Baguio City, suffered the same fate as that of Manila. Of the buildings and installations of the Philippine Military Academy, not even the charred remnants of the cadet barracks nor the debris-strewn parade grounds would suggest to the circumspect traveller that here, once upon a time, smartly uniformed cadets used to go about their daily chores in much the same fashion as those at West Point.

All along the adjoining hills of Teachers' Camp today are a wild verdurous growth of stalwart pine trees —all that remain of the academy. These straight, rugged trunks are indeed reminiscent of the crop of fine, sturdy stock of Filipino soldiers of yesterday. In spite of the crucibles of war and the privations that the Filipinos had to bear under the heels of the invaders, the idea and the symbol of such a school as the Philippine Military Academy is not dead. In fact, it will rise again as all healthy, natural growths go. The new Republic is scarcely a year old; but it has definitely set its eager planners to work on the blueprints of a new West Point of the Philippines.

At this writing the President of the Philippines has already approved the official site of the Academy. Considering climate, terrain, and locale, Loakan, on the outskirts of the City of Baguio, is an ideal location. Here, only a few miles from the city and closely adjacent to the municipal airport, is a gentle rolling country 5,000 feet above sea level. According to plans the physical plant of the new PMA will have every facility adequate to take care of more than 500 cadets at one time.

Historical Background

The Philippine Military Academy was, strictly speaking, an offspring of the Commonwealth era when the National Defense Act of 1935 authorized its establishment. Curiously enough, when President Quezon asked General MacArthur to lay the groundwork for a Philippine citizen army, it was a certain Lieutenant Colonel Dwight D. Eisenhower, member of the Philippine Military Mission, who cooked up the details of the Military Academy patterned after West Point. On the other hand, as early as 1905, only a few years after the Philippine insurrection headed by Aguinaldo had died down, the need for a Constabulary School was felt, to give adequate training for young shavetails who were after the trail of the islands' irreconcilables. General Henry T. Allen of the U.S. Army is remembered for pioneering in this school. From that time on the Philippine Constabulary School had become the source of regular commissioned officers of the state police. Residence at the Academy for the student officers varied from six months in 1908 to two years prior to the enactment of the National Defense Act. The curriculum of the old Constabulary School dealt mostly with peace-and-order courses intended to train the young second lieutenant in copping up with highway bandits and the Moro problem of Mindanao and Sulu.

In 1936 when the Philippine Constabulary Academy became the Philippine Military Academy, the curriculum and a thousand other details went in for a thorough change. To this gigantic task Philippine military history should very well reckon with the name of the late Colonel Pastor Martelino (Philippine Scout officer and a West Point graduate) who may be considered the father of the Military Academy. (Incidentally, he was executed by the Japs in 1944.) This energetic Filipino professional soldier went to work with a select group of Philippine Army officers and built up a counterpart of Sylvanus Thayer's school at Teachers' Camp, Baguio. The course was lengthened to four years with a Bachelor of Science degree awarded to the graduate upon completion of the course. The academic, physical, and extracurricular traditions of West Point were prescribed and adopted. Even the full dress uniform—bell buttons, shako, sashes, woolen jackets (minus tails)—was a close ringer to the West Point attire. There were four departments, namely, (1) Department of Engineering, (2) Department of Mathematics and Natural Philosophy, (3) Department of Languages and Social Arts, and (4) Department of Tactics. The Commandant of Cadets was invariably a West Pointer and the heads of the different academic departments were graduates of reputable American universities and the University of the Philippines.

Character training, military and physical proficiency were stressed in all phases affecting cadet life. Academic

*Field Artillery officer in Philippine Army.

ratings were given every day and deficient cadets were either turned out for final exams or "found" and subsequently debarred. The demerit and honor system, the "plebe-conscious" yearlings, and all other social activities were introduced and practiced with the least scruples. Graduates of Class '37, '38, '40, '41 who are now veterans of Bataan, Corregidor, and the resistance movement, have been imbued with years of patient, conscientious technical and practical military schooling never before experienced in this part of the world. Whether they had chosen the air corps, infantry, artillery, or any branch of service in the Philippine Army, they have become the very backbone of the regular officers' establishment simply because their PMA training was no less rigid and wholesome than West Point, Annapolis or any of the world's better known military institutions.

By June this year, 75 new cadets will be admitted to inaugurate the postwar academy. Faced with the problem of inadequate quarters and lack of classroom facilities, the school will start all over again acquiring, replenishing, and building up its physical plant, records, and its reputation.

The program of instruction and training has been designed to dovetail with the new trends of military warfare and the officer-requirements of a modernized Philippine Army. It is expected that the Academy graduate will be sufficiently equipped with a thorough knowledge of the fundamentals of engineering and the physical sciences, and a broad education in the humanities and social sciences.

Spirit of the PMA

The tenets of Courage, Loyalty, and Integrity (PMA's motto) became living symbols to the men who kept the underground movement alive during the Japanese occupation. The following is the story of undergraduates of the Military Academy in that significant segment of Philippine military history linked with guerrilla warfare. It serves to gauge the degree of sustained effort which could only be the residue of discipline and courage of the PMA brand.

When the Japs started to bomb Camp John Hay (U.S. Army reservation in Baguio City) in 1941, the Corps of cadets were ordered to vacate Teachers' Camp and proceed to Manila in a hurry. Brigadier General Fidel V. Segundo (USMA Class '18), then superintendent, mobilized the entire cadet corps and the officers and, in commandeered trucks, bundled off the whole personnel of the Academy under cover of darkness to Manila. There the first and second classmen were hastily graduated and assigned to line duties.

The yearlings and the plebes were not mustered into the service—much to their chagrin and disappointment—and in the hurley-burley of the retreat to Bataan and the eventual evacuation of Manila, these cadets were ordered disbanded together with several ROTC boys who failed to make Bataan. They were told to go home; that was bitter and painful to these youngsters who were all eagerness to take a hand in the fighting.

Came the sad days of March and April, 1942. With Manila occupied by the enemy and Bataan under a fierce siege, the orphaned cadets were in a fix. When the fateful day of the fall of Bataan came, these boys took to the hills.

Thus the Hunters, ROTC Guerrillas led by two former PMA cadets (Miguel Ver and Magtangol "Terry" Adevoso), was born. Arms and ammo were smuggled to the hills of Montalban and the Sierra Madre. Every day the small army of Jap saboteurs grew and spread its activities in and around Manila and central Luzon. The intelligence coverage of this guerrilla unit is on record with the files of G-2, Southwest Pacific Theater.

Colonel Ver's hide-out was raided by the Japs and he himself became a casualty. "Terry" Adevoso carried on the job until the American liberation forces streaked into Manila in February, 1945.

Many of the young PMA officers fell in the front lines of Bataan and Corregidor. Some have succumbed to disease as a consequence of the "death march" and the filthy conditions of the Capas Concentration Camp. Others who were captured and incarcerated in the charnel halls of Fort Santiago were later put to the samurai sword.

All these exploits of young patriots and heroes can very well stand the test of time in the valiant history of the Philippine nation. Any institution worth its salt should look back to the glory and sacrifice of gallant men who gave these "traditions in blood" for the next generation to cherish and emulate. Certainly, the new West Point of the Philippines shall have come of age with a rich legacy when it opens its doors in June this year.

Recognition Day for the Plebes; Upperclassmen shake hands with the Plebes who may now become Yearlings. A prewar photograph.

First Cavalry Division Artillery Combat Operations

by Colonel Rex E. Chandler

Here is the complete account of the First Cavalry Division Artillery combat actions in World War II written by former Brigadier General Rex E. Chandler, wartime Division Artillery commander. The First major campaign for the Division, the Admiralty Islands, presented artillery problems of technique in transport, over-water displacements and fire support not covered at that time in existing field manuals. How this and other combat problems were overcome is discussed in this article.

ACCOUNTS of combat operations of American divisions seldom more than mention the presence of artillery. The better the support, the more closely integrated the infantry-artillery team, the more likely were the problems and solutions of the artilleryman to be lost in the recording of actions which brought about successful operations. Particularly was this true in organizations where there existed a mutual interest, admiration and confidence such as was found in the First Cavalry Division. The following paragraphs summarize a few of the methods of handling artillery support met and worked out by the artillerymen of the Cavalry Division in the march from Camp Strathpine, Australia, to Tokyo.

The First Cavalry Division, the only "Square division" of World War II, entered the combat zone with less than the full complement of artillery normally provided an American division. It was short in quantity and light in the caliber of its weapons. The division arrived at Camp Strathpine, Australia, with three artillery battalions organized as follows:

61st FA Bn, 1½-ton truck-drawn, 105mm (Snubnose) M-3 Howitzer.

82d FA Bn, ¼-ton truck-drawn (jeep), 75mm Pack Howitzer.

99th FA Bn, ¼-ton truck-drawn (jeep), 75mm Pack Howitzer.

Such an organization provided one 75mm howitzer battalion for direct support of each cavalry brigade and the 105mm M-3 battalion for general support. What the division needed, and what it finally finished combat with on Luzon in 1945, was four 105mm battalions, one for the direct support of each cavalry regiment, and a 155mm howitzer battalion for support of the division as a whole (general support). The evolution of the artillery organization followed the requirements of combat as each operation indicated the need for more artillery and heavier calibers.

The 271st FA Bn, 105mm Howitzer, truck-drawn, was organized at Camp Strathpine on October 11, 1943, from officer and enlisted personnel drawn from the other battalions. Because the 99th FA Bn had been converted from mule pack to a jeep-drawn there existed a surplus of enlisted personnel in that unit. This personnel plus overstrength brought overseas by the other

battalions permitted the organization of the 271st without outside replacements. Thus four months later the battalion was to do an outstanding job in combat. A tribute to the excellent training of the division artillerymen and the superlative efforts of the men and officers of that battalion.

Also in October 1943 the 61st FA Bn was converted to two-and-one-half-ton truck-drawn, and the M-3 (Snubnose) howitzers replaced with M-2 howitzers. At Borio, New Guinea, in January 1944, further changes were made in the prime movers of all battalions. The 61st and 271st FA Bns were given TD-9 tractors in exchange for two-and-one-half-ton trucks and the 99th and 82d FA Bns exchanged their one-quarter-tons (jeeps) for three-quarter-ton weapons carriers. Thus equipped and organized the division artillery entered combat in the Admiralty Islands.

The Admiralty Islands campaign brought out two defects in the weapons and organization of the artillery of the division. First the 75mm pack howitzers were too light for jungle warfare. Second a general support artillery battalion of 155mm caliber was needed. With only four battalions to support four cavalry regiments the division artillery commander was often confronted with the problem of where to get additional artillery to influence the action of a particular regiment. In every such case it was necessary to withdraw a battalion from its direct support mission. As a result of the experience of this campaign a request was made on the Sixth Army to convert all light battalions to 105mm howitzers and provide a 155mm howitzer battalion for general support. This request was met as follows:

In October 1944 and three days prior to loading out for the Leyte operation the 82d FA Bn received its 105mm howitzers. Because of limited over-water transport the 99th FA Bn left its three-quarter-ton prime movers in the Admiralties, went porte, and loaded its weapons in two-and-one-half-ton trucks. With such an arrangement it became a compact march and water-transported unit with far more cargo and ammunition carrying capacity than it had with either the one-quarter-ton or three-quarter-ton prime movers. Several times during the Leyte Campaign the 947th FA Bn, 155mm Howitzer, was attached to the division for specific operations. When the division sailed for Luzon in January, 1945, the 947th accompanied it and remained attached throughout that campaign. Toward the end of the fighting on Luzon the 99th received its 105mm howitzers. The cycle of organization, transportation, and equipment was completed shortly before VJ Day with the division artillery organized as follows: five battalions, 61st FA Bn, 82d FA Bn, 99th FA Bn, 271st FA Bn, and 947th FA Bn, all composed of tractor-drawn 105mm howitzers. (Attached and adopted by troopers and artillerymen alike for the excellence of its fires and the esprit of its officers and men.)

The Admiralty Islands campaign presented artillery problems of technique in transport, over-water displacements and fire support not covered at that time in existing field manuals.

In amphibious operations followed by fighting in jungle terrain the first problem that confronted the artillerymen was that of transportation. The current WD T/O & E's provided for motor transport far in excess of that which could be carried by the watercraft available and beyond the capabilities of the road net on the objective shore. This was recognized early and the First Cavalry Division Artillery was reorganized in New Guinea to conform to the principle that the maximum amount of transportation needed for any operation would be that required to mobile load TE equipment and one-half unit of fire of ammunition with all personnel, except drivers, walking and carrying individual equipment. Overloading was accepted. Initially battery commanders were allowed considerable latitude in the manner of loading under the directive that the equipment would be readily accessible in the order in which it would be needed in the occupation of position. The ingenuity and initiative of the individual were encouraged. As new ideas were developed and found satisfactory they were adopted and made uniform throughout all battalions. Battery commanders were required to keep all equipment in the vehicles, nothing in supply and storage tents. Thus loaded, the battery or battalion could move out in a few hours and the men were trained to keep their equipment dry and serviceable under field conditions. During the training in the Borio, New Guinea, staging area, batteries operated with reduced transportation. This reorganization paid dividends when the operations started.

A usual method of target designated by artillerymen is the use of numbered reference points or scheduled fire concentrations indicated on a map or overlay by 200-yard circles. During the Admiralty Campaign and thereafter this method was adopted by the cavalry and

A First Cavalry Division Artillery gun crew stands by to fire during jungle training of the 61st Field Artillery Battalion at Camp Strathpine, Brisbane, Queensland, Australia.

extended to supporting Navy units, providing a common language and relatively secret code for the initial phases of each shore to shore operation and major attack. Where practicable copies of the artillery reference point and concentration overlays were furnished through Liaison Officer and forward observers down to cavalry platoon leaders. Thus any cavalryman could call for Naval gunfire or artillery fire by the simple means of asking for a numbered concentration or designating his target with reference to it.

In jungle warfare wherever practicable the artillery should be emplaced on the flank of the attacking forces to provide closer support of the advancing troops and eliminate tree bursts within our own lines. By clever use of island positions the artillery was able to provide such support throughout all phases of the shore to shore operations during the Admiralty Island campaign. In the attack on Lorengau by the Second Cavalry Brigade the three artillery battalions designated to support the attack were in island positions from which they could support all phases of the attack. The 61st and 271st FA Battalions were on Hauwei Island and the 99th on north Butjo Luo Island. All battalions fired in support of the initial landing at Lugos Mission. The 61st and 271st FA Battalions provided flanking fire to the squadrons of the Eighth Cavalry in their movements down the Beach Road and Number One Road toward Lorengau. So effective were these positions that the gunners could observe their own fire and using field glasses watch the advance of the cavalry down the Beach Road.

The 99th FA Battalion interdicted Number Two Road, the only avenue of withdrawal of the Japs, and provided flanking fire for the advance of the Seventh Cavalry along that road after the capture of Lorengau. Following the attack on Lorengau the 271st FA Bn was returned to direct support of the 12th Cavalry for the attack of the First Brigade in the Papitalai Hills. This battalion displaced to positions in the Salami Plantation on the West Shore of Los Negros Island. From there it could support the action of elements of the Twelfth Cavalry and reinforce the fires of the 82d FA Battalion in position near Momote Airstrip. The positions of these two battalions were such that either battalion could reinforce the other with flanking fire and afford close-in support of the cavalry irrespective of the direction of attack. Interlocking radio communication permitted the observers of one battalion to adjust fire of the other, a very important and necessary consideration when elements of the attacking regiments converged in the thick jungle of the Papitalai Hills.

The following comments of a squadron commander of the Fifth Cavalry are appropriate.

"We used all the artillery we could get. We could not get too much. One entire battalion of field artillery in direct support of our squadron was most profitable.

"Preparatory to the attack, a barrage of intensity commensurate with the importance of the objective was indispensable in attaining the objective with minimum casualties. On occasions we found it profitable to use as many as 1500 rounds or more in the initial preparation. The take-off was followed by a rolling barrage, in close, which facilitated the advance. Enemy outposts were driven back so that we were able to reach their main line of resistance without delay and harassment. Artillery fire leveled foliage, made bare pillboxes and bunkers, and exposed enemy points of resistance. Craters from artillery fire offered our troops cover in the advance. The delay fuze was used effectively to bring the shells through the foliage to get the bursts down on the ground. Artillery fire on villages drove the enemy away from the supply points and denied them food and ammunition. Many enemy dead were found in these villages following artillery fire.

"Concentrations on points of resistance, and prepared positions located in the daytime by our patrols, silenced enemy fire, kept the enemy in their dugouts, and prevented movement on the ground between our perimeters and their prepared positions. Fire on our flanks protected our long and narrow lines of communications and supply from envelopment.

"Close and constant liaison with squadron, troop, and forward observers, who were with the forward elements, resulted in excellent coordination. All our plans included detailed employment of artillery.

"Observer planes were of inestimable value in these jungles. Often it was only through their use that we were able to locate ourselves accurately on the ground. The location of our troops and the objective for the day were made known to the air observer daily. By the use of flares fired from front-line positions the exact location of our troops was determined by the observer so that he could adjust close-in fires with safety. This worked especially well when our troops were pinned to the ground. Returning patrols reported coordinates of targets to the liaison officer with the Squadron, who sent them to the air observer. In practically every instance the target was well covered with artillery fire. The effectiveness of all daytime fire was constantly adjusted and checked by plane when ground observation was not possible, which in the jungle is most of the time."

The Leyte campaign presented problems of mud and mountains that taxed the artillery to the utmost to provide adequate fire support and afforded opportunities for assistance that put the cavalry-artillery team into a smooth functioning unit and tightened the bonds of mutual admiration and respect.

Accurate maps were nonexistent. The only way in which the artillery could provide fire support was through the combined efforts of the ground and air observers, by the methods worked out in the jungle terrain of the Admiralties. The air observer after spotting the location of the ground observer would start an adjustment with the initial rounds well in front of the cavalry troops. He would then pull the fire back until

the ground observer could take over. In the mountainous terrain this required careful coordination by the observers and accurate laying of the pieces at the gun positions.

When the bottom dropped out of the secondary supply routes to the cavalry regiments operating in the mountains, artillery ammunition vehicles, the tractor and trailer, were used to push food and ammunition forward and evacuate sick and wounded. The artillery liaison planes dropped medical supplies, food and ammunition to isolated troops in positions that made any other means of transport impracticable.

One incident which occurred during this operation illustrates the measures which an artilleryman will take to look after his supported unit. One of the cavalry regiments in its movement across the mountains was beyond the support of its artillery battalion but the battalion commander continued to follow its movements from a liaison plane. An air drop of food to the regiment did not materialize. The situation became critical. Division headquarters were unable to arrange to have food dropped through the usual request channels. The artillery battalion commander went to the air strip near Tacloban and persuaded an air corps pilot of a C-47 to take the mission, without benefit of orders or fighter cover. He, the battalion commander, secured the food, lashed himself in the open door of the plane, placed his own radio set in a position so that he could talk with his forward observer with the regiment and proceeded to deliver. The ground observer talked the pilot into position over the dropping ground and the battalion commander kicked packages out of the door on each pass of the plane over the area. This performance was repeated several days later not, however, without some repercussions from corps and Army staff, but the job was done. If the artillery could not support the regiment by fire it certainly could with food.

A single one-way beach and mountain road on Leyte connected Carrigara and the operating area of the Cavalry Division with the Ormoc Valley. This was the principal supply route of the 32d Division. When the Fifth, Seventh and Twelfth Cavalry regiments broke through the mountains and entered the valley the question of artillery support became critical. Only one battalion could get through and be supplied over the Carrigara-Ormoc road and then not until the resistance confronting the 32d Division, north of Loroy, had been broken. The 77th Division had landed near Ormoc and was pushing north for a junction with the Twelfth Cavalry. An artillery staff officer was dispatched to that division to act as a liaison officer and arrangements made for the use of its artillery until the 61st FA battalion could move south to suitable positions. The excellent assistance rendered by the 77th Division artillery provided the support needed at a critical period. In the mopping up operations and movement of the cavalry to the west coast of Leyte the 61st FA Bn had some of the most intense firing and lucrative targets of the campaign, not to mention the constant harassing of infiltrating Japs by-passed in the fast movement of the cavalry.

Artillerymen who served with the cavalry prior to the war have indicated that there was always the question in the minds of the cavalry officers as to whether the artillery could keep up with the fast moving mounted trooper. The same question arose when the division made its dash from Lingayan Gulf to Manila in February 1945. To meet this situation the tractor-drawn artillery battalions dropped their tractors, hitched the howitzers to two-and-one-half-ton trucks and joined the columns. Two truck-drawn batteries were with the flying columns that broke into Santo Tomas University and the remainder of the artillery was in position near Grace Park Air Strip, when the division entered Manila. Not once during subsequent operations east of Manila, on the Bicol Peninsula, and west of Laguna de Baya was a regiment without artillery support although the roads and terrain taxed the initiative and ingenuity of the battalion commanders to the utmost.

From positions on and near the Wac Wac Golf Course in Manila, the Artillery supported the action of the First Brigade, south of the Passig River, and the operations of the Second Brigade, east and northeast of Manila. During one period the light battalions and batteries of the 947th were so disposed that they were delivering fire through 270 degrees of the compass.

The action in Manila and east, toward Antipolo afforded the division artillery its first wartime opportunity to mass the fires of all battalions. What amounted to a division artillery fire-direction center was placed in operation with direct telephone communication to the fire-directive center of each battalion. An improvised telephone switching arrangement at Division Artillery CP permitted the Division Artillery S-3 to call and talk to all battalion S-3's, individually, or on a party line. Within three to five minutes all battalions could be firing on a target located and adjusted on by any observer. TOT (Time on Target) fires were used with excellent effect. In addition the artillery controlled and coordinated air strikes by lifting artillery fires just prior to the air attack, marking targets with smoke rounds and reporting the effectiveness through forward and air-observers. This was accomplished by a Division Artillery Liaison Officer, in direct radio communication with the Division Artillery CP and all battalions, stationed with the air liaison and control officer at his forward observation post. Such control insured more effective air support and withheld the artillery fires only during the period where the planes were making their runs over the target.

As the artillery battalions were withdrawn from combat during the closing stages of the fighting on Luzon they were given the mission of patrolling and mopping up in the rear areas of the zone of action of the division. A new role for the artillerymen but one which brought them closer to the problems and hardships of the cavalry trooper and made them better artillerymen.

EMPLOYMENT OF ARMORED INFANTRY

*by Major Henry S. Hastings**

The importance of a closely knit combined team of infantry and tanks is emphasized in this article by Major Hastings, an advanced student at The Armored School. By joining tanks and infantry up to form a combined force one overcomes the weak points of the other.

EARLY in World War II when armored divisions were first incorporated into The United States Army their fighting force consisted of three tank regiments, one armored infantry regiment, two field artillery battalions, a reconnaissance battalion and an engineer battalion. It was customary to attach an antiaircraft battalion and a tank destroyer battalion. The armored division was organized as a well rounded, self-contained, mobile unit which could operate separately for a considerable length of time. The principal doctrine of the division was to attack with tanks in mass with all other arms assisting in pushing the tanks forward.

In early maneuvers it was found the division was too large to move around easily and the tanks were out of proportion to the infantry. As a result one of the tank regiments was dropped from the division. About the same time another artillery battalion was added giving a total of three battalions. In the organizing of later armored divisions tank and infantry units were organized as separate battalions with a total of three tank battalions and three infantry battalions. This gave a much better balanced unit of tanks and infantry. As tanks and infantry were seldom employed as regiments the separate battalion organization had many other advantages.

Armored infantry regiments were originally copied after regular straight infantry regiments. They were smaller with less men in the rifle companies and had no antitank or cannon company. The number of actual fighting men was further reduced by drivers and vehicular maintenance personnel. The first vehicles used by the armored infantry were the four-wheel scout cars which gave some armor protection but had little cross-country ability. These were soon replaced by the M-2 and M-3 half-tracks. The fire power of the armored infantry was greater due mainly to the vehicular machine guns which each vehicle carried. Training was basically dismounted infantry tactics with special emphasis on offensive combat with tanks. Training was given in mounted marches, formations and fighting the vehicle. The latter was very seldom used as most of the time armored infantry fought dismounted.

Communication in armored infantry units was by means of SCR 508, 528 and 510 radios when mounted. When the infantry dismounted the 510 was dismounted and carried to form the SCR 509. This radio was too heavy and unhandy to carry as a dismounted set. It was possible to net it with the tank radios by installing the correct crystals. This was not done in lower units and it was not used for tank and infantry communication. Armored infantry units later received the SCR 300 and SCR 536 for dismounted use. These worked well for infantry communication but still gave no communication with the tanks. Telephones were installed on the backs of tanks for communication with the infantry. They were not very successful due to inability to alert the tank commander, inability to get to the back of the tank or damaged wires and phones. The only sure method of communicating with tanks was to climb on the back of the tank and talk directly with the tank commander. Visual signals were used to some extent, however messages are very limited by this means. With the SCR 300 and the AN/VRC-3 radio in the tanks communication may be improved between tanks and infantry. However, only one SCR 300 radio is authorized in each armored infantry company and tank-infantry communication is desirable in units below the company level.

In early training the armored infantry was used principally to follow an attack and secure ground taken by

*Student at The Armored School.

the tanks. There was no close coordination between the tanks and infantry, both operated more or less separately. The importance of a closely knit combined team had not at this time been realized. Of necessity the practice was started of joining tanks and infantry up to form a combined force, one overcoming the weak points of the other. This eventually developed into the tank-infantry team with units of various size from battalions to platoons being joined together according to the mission, enemy and type of terrain. It became customary in all types of operations to join infantry and tanks together with one or the other leading according to the type of obstacles met. In the heavy armored division there was always a shortage of infantry. Often battalions from infantry divisions were motorized and attached to the division to overcome this shortage. The principal disadvantage to this was that attached battalions did not have the training or experience of fighting with tanks and personnel of tank-infantry teams were not familiar with each other. The latter was found to be an important factor in gauging over-all efficiency of a combined team.

Whenever possible it was found best to join up the same tank and infantry units together in training and in combat. Not only would staff sections function better but lower unit commanders and individual tank crews and infantry squads became acquainted and gained confidence in each other. Units gained objectives as a team and not as individual arms. To round out this team artillery forward observers were attached down to include tank and infantry companies from the field artillery battalion in direct support of the unit. This gave a well rounded team of tanks, infantry and artillery. The artillery forward observer operated dismounted with the infantry and the observer with the tanks rode in a tank. Wherever possible the same artillery battalions were kept in support of the same units.

Prior to an attack on designated objectives the tanks and infantry were joined together in a rear assembly area. Infantry vehicles were sometimes left in this area and the infantry rode on the tanks up to the attack position where they dismounted and attacked with the tanks. At other times the infantry rode mounted in their own vehicles to the attack position and dismounted there. In attacking a position the enemy often placed all his artillery on the attacking tanks forcing the infantry to fall behind some 200 or 300 yards. It is important that the infantry not be entirely separated from the tanks as one of the enemy's objectives is to separate the tanks and infantry so they may deal with each in turn. After tanks overran the objective the infantry mopped up and organized the position, or the team reorganized and continued on to the next objective. Usually a team was assigned several objectives with other teams attacking on either side. Where enemy mines, obstacles or antitank guns were encountered the infantry took the lead and was supported by the tanks.

When these obstacles had been reduced the tanks passed through the infantry and continued the attack. In some instances after committing the tanks it was found the objective displayed more antitank defenses than was first thought. In such cases it was necessary to have the infantry pass through the tanks and seize the objectives before the tanks could move forward. At times the infantry would be holding in a defensive position and the tanks passed through and made an attack with the infantry following. It was found much better for the tanks and infantry to join in a rear area.

In the attack of a fortified town a coordinated envelopment and frontal attack was generally used. Medium tanks encircled the town sealing it off so reinforcements could not get in and the enemy in town could not escape. To have tanks in their rear created confusion among the enemy. The frontal attack was made by tanks and infantry. The tanks led to the outskirts of town where the infantry passed through and cleared the town. In this phase small teams of tanks and infantry worked together. Usually a tank to a squad of infantry. The tank covered the infantry squad's movement forward and supported by knocking out automatic weapons and other strong points. These small teams must be organized before the attack and given specific sectors or streets. Coordination and control is most difficult in this type fighting and prior planning must reach down to the lowest units. Because of their speed and maneuverability the light tanks were found good for supporting infantry in a town. Teams continued through town and set up a defense on the far side with the medium tanks. The support which consisted of infantry and tanks followed the attacking teams, took over prisoners, and assisted in overcoming particular tough islands of resistance.

In attacking a woods the infantry led and the tanks were used in a support role. The main enemy defenses were found in the edge of the woods where there were good fields of fire. During the infantry attack the tanks supported from vantage points by direct fire into the edge of the woods using both machine guns and cannon. Infantry vehicular machine guns were sometimes used to supplement the tank fire. After the infantry entered the woods tanks followed closely along and continued in support. When woods were very thick and no trails existed it was necessary for tanks to skirt the woods and join the infantry on the far side. Tanks had to stay close to infantry in the woods for protection from rockets and other individual antitank weapons. In an attack through large wooded areas where the terrain was extremely hilly it was sometimes necessary for the infantry to attack alone and the tanks join them later after engineers had cleared avenues of approach.

Small tanks and infantry teams were very successful in attacking pillboxes and bunkers in the Siegfried Line. A medium tank company and an infantry company were joined together. These were further broken down to form assault teams consisting of a section of tanks, two squads of infantry and an engineer flame

thrower team. This gave two assault teams to each tank and infantry platoon and six teams to the tank-infantry company. Two or more assault teams would attack pillboxes simultaneously and other teams passed through to attack positions farther on when the first positions were overcome, using a leapfrog method. Prior to teams attacking, an artillery observer put artillery fire on the position forcing the enemy defending outside to seek cover inside the pillbox. The section of tanks took the position under fire with machine guns and cannon forcing the enemy to close the gun ports. The two infantry squads then approached the position from a blind side prepared to make an assault. The tanks continued to fire and attempted to shoot the gun ports in. The tank fire lifted as the infantry reached the position. The infantry placed charges in the ports to blow them in if the tanks had not already accomplished this. The flame throwers were directed through the ports and the infantry entered and cleared the box out. In most cases the enemy came out when the flame thrower was used. Smoke and fragmentation grenades thrown in were found very effective in bringing the enemy out.

On an exploitation combat commands marched in from one to sometimes three columns. Each column was organized into a tank-infantry team usually not less than battalion strength. Many of the actions in an exploitation were advance guard actions. The point was generally made up of a section of medium tanks. The advance party was composed of a medium tank platoon with a platoon of infantry mounted on the backs of the tanks. The remainder of the infantry with the advance guard rode in their vehicles in the support. On long marches the infantrymen riding the tanks were rotated to rest them. Their half-tracks followed at the rear of the main body. This shortened the column and made the infantry immediately available should they be needed. The infantry in the main body usually moved mounted in its vehicles. When passing through woods where enemy was suspected the infantry in the advance guard dismounted and took a parallel route through the woods on either side of the road. The infantry was used to take out road blocks, antitank guns and mines when encountered to allow the tanks to move ahead. Tanks in the advance guard acted as a base of fire while the infantry maneuvered and took out the resistance. Infantry in the main body was often used reinforced with tanks to put out flank security. The general practice was to put two squads of infantry and a section of tanks to cover a main avenue of approach. As there is danger of an attack on any part of a column during an exploitation tanks and infantry were distributed throughout the column. This was particularly necessary in a long column where a combat command was marching in a single column. Often the command attack from a march column when on an exploitation and it was necessary for the infantry to be joined up with the tanks on the march. When the advance guard hit something the column would coil just off the road and get set for action.

When halting for the night or any length of time security was placed well out. Strong outposts and road blocks covered roads and other avenues of approach. It was found a good hasty road block could be established by stringing a couple of concertinas of wire and mine necklaces across the road covered by a section of tanks and two squads of infantry. The infantry should have a dismounted post in front of the block to alert the main force on an enemy approach. An artillery observer was posted with the main blocks and artillery fire plan prepared to support the blocks. The infantry was used to assist the tanks in setting up local security around the bivouac area.

On an exploitation where movement continued at night more infantry was put in the advance guard and it was necessary for them to dismount more often to protect the tanks and make dismounted reconnaissance of dangerous areas. Progress was much slower at night. In terrain where we averaged fifty to sixty miles a day only fifteen to twenty miles was made at night. When artificial moonlight was used it helped very much.

In organizing a defensive position armored infantry battalions were used practically the same as regular infantry units. The main difference was we had more tanks and used more of them in the line. Generally all three infantry battalions were put in one combat command and two battalions were put on the line and one in reserve. Each battalion had attached a medium tank company which was assigned a platoon to each rifle company and dug in on the front lines covering tank approaches. A platoon of tanks along with the reserve rifle company acted as the battalion reserve. The reserve infantry battalion of tanks constituted the combat command reserve. Where the front was such that all three infantry battalions were required on the front lines the division reconnaissance battalion was used to relieve battalions.

In an amphibious operation the division was usually formed into combat commands and landed after regimental combat teams had established a beachhead. If possible ports were secured and the combat team was landed there. Other times the landings were made on beaches from landing craft. Missions of the command were to help expand the beachhead, act as a reserve or seize important installations or terrain features. The armored infantry and tanks were loaded as teams on the landing craft. The first mission of the armored infantry was to secure and outpost assembly areas for the teams. After assemblying the team fought in the manner already covered. If difficulty occurred in landing vehicles the infantry was sometimes transferred to smaller craft and landed dismounted to assist the regimental combat teams until the tanks and vehicles were landed. In landing operations plans had to be kept flexible as so many different things could happen. Armored units generally had several plans and executed the one which best suited the situation.

Tank-Infantry Teamwork At Its Peak In The Armored Division

*by Major Emerson F. Hurley**

IN the first and second years of World War II the combined training of tanks and infantry in the armored divisions was nonexistent The armored infantry regiment and later the armored infantry battalions were a thorn in the side of maneuver directors because of the planning required to give the foot soldiers something to do in the large-scale armored operations.

In the early desert training one example was a 23-mile night march across a mountain range as a separate operation for an armored infantry regiment. During the Tennessee maneuvers in the spring of 1943, successful combat command commanders were using the armored infantry half-tracks to precede tanks to explode mines and draw antitank fire.

It was not until the spring of 1944, in England, that the first 100 per cent tank-infantry team was formed in an armored division. During the first month of the fighting in Normandy, Major General Lunseford E. Oliver of the Fifth Armored Division, performed a marriage ceremony between his tank companies and infantry companies that catalyzed the growing belief of the need for each other. At that time it was to be only one of the division SOP formations, but it immediately became so successful and popular that it was used practically all the time this division was in combat.

This plan called for three equal combat commands. The three rifle companies and the three medium tank companies in each combat command were welded together into what may be called three armored organizations. The tank and the infantry half-track and personnel now became one squad. It consisted of five men inside the tank and10 men outside the tank. Sometimes the men outside rode in their half-track, sometimes on the tank. But the men outside had one job—stay with that tank. Their primary mission was to fight with the tank while their presence near the tank offered some protection from enemy individual weapons, such as the bazooka, magnetic charge, and hand grenade. Their secondary mission was to dig the enemy out of foxholes, cellars, and houses. We called it the armored squad.

The armored infantry platoon contained five squads which made an equal union with the tank platoon. The mortar and machine-gun squads in the infantry very seldom used their crew-served weapons in this formation. They became rifle squads. The armored platoon consisted of five squads, and the armored company of three platoons.

Each company now had two captains, each platoon two lieutenants, and each squad, two sergeants. At first thought, surely this would be too many commanders. And another thing, how would these three large companies be divided between the two battalion staffs?

Now, looking back at that situation, those were not questions at all. The combat commander gave two of these companies to the tank battalion staff and one to the infantry battalion staff. The other attachments were divided evenly which resulted in a light task force and a heavy task force in each combat command.

COMBAT COMMAND DIVIDED INTO TWO COLUMNS

Light Task Force	Heavy Task Force
Married Platoon	Married Company
Assault Gun Platoon	Assault Gun Platoon
Mortar Platoon	Command Group
Command Group	Reconnaissance Platoon
Reconnaissance Platoon	Engineer Platoon
Married Company (—)	Married Company
Engineer Platoon	Headquarters Company
Headquarters Company	Battalion Command Post
Battalion Command Post	Tank Destroyer Platoon
Tank Destroyer Platoon	Medical Detachment
Medical Detachment	Service Company
Service Company	Artillery Battalion
Artillery Battalion	

The control of the unit was performed through the tank radio net—the same as the tank company alone. The infantry vehicular radios were very seldom used. The presence of the infantry among the tanks did not interfere with the usual good control that is characteristic of all tank units. The tank commander issued orders to both men inside and outside. They became one large squad.

These married companies moved into the Salisbury Plain in late June and trained together. They ate from

*Student, The Armored School.

the same kitchen or the same 10-in-1. They slept around the tank and half-track. They went through combat firing problems together. They planned bivouac security and cleaned weapons together. The tank and the half-track were always together.

The comradeship and brotherly love that is formed from close association had been planted. The men began to hope they would not be separated when they reached Normandy.

It was on August 2, 1944, that this column went down the Normandy Peninsula behind the Fourth and Sixth Armored Divisions. After passing Avranches the Fifth Armored Division struck out on its own to Vitre and Lemans. It was tank, half-track, tank, half-track all the way.

Lemans was one of the first large cities in France to be surrounded. It was done in a matter of hours after arriving there. Combat Command B was given a third of the city's outer perimeter to cut. This was divided between the two task forces. A line of roadblocks was quickly made. The armored squad (tank and half-track) can make a powerful roadblock by itself.

With the tank and half-track hidden, two soldiers go out in front of the tank near the bend in the road. They turn, each raises one hand. The tank commander looks down at the gunner. Yes, he can see them.

These two Americans are confident, cocky men. Brave? Yes. But it is more than that. They actually want something to come up that road so they can raise a fist in the air. That's their private signal to Howard, the gunner, to put a tank shell down the road in front of them. Ralph and Frederick feel they are more than just two soldiers on a roadblock. They have the power of an American medium tank behind them. They can afford to be brazen and reckless because Howard, the gunner, is one of their team.

It was he who told Frederick to get larger shoes back in England. Howard had worked as a boy in his father's shoe shop in northern New York and knew all about shoe fitting. Yes, after the war he would look up Howard.

That is a type of teamwork with which Combat Command B of the Fifth Armored Division fought the war. It was used from the beginning to the end except for short administrative groupings.

From Lemans it was tank, half-track, tank, half-track to Argentan, Dreux, Paris, Sedan, Luxemburg. Here a tank had been hit in a fierce, local fight. It had started to burn. Machine-gun fire was hitting the tank and the trees near by. The crew bailed out. Howard was halfway out the turret when machine-gun fire hit him.

He lay unconscious in the turret of the burning tank. In an instant, a soldier jumped up on the tank and carried the wounded man to shelter in the rear. Howard was seriously wounded but before he started back he gave a ring to Frederick and asked him to give it to his mother after the war. A medal was given to Frederick. The citation read, "an infantry soldier had disregarded withering machine-gun fire and climbed upon a blazing tank and rescued a member of a tank crew." That was not the whole story. To the men of this armored squad, it was one member helping a buddy.

As the winter approached these armored squads were fighting in northern edges of the Hürtgen forest. The half-tracks were back in an assembly area and the armored squads were living and fighting around the tank. In forcing the Germans back across the Roer, the mortars from the other side were having a field day. For the tanks it was a series of short, fierce attacks, and longer waits. During this waiting, the tanks were in firing positions with the outside members securing it. For the tanks that were forced to wait in the open, the men outside dug in under the tank for protection from the mortar fire. The men inside would exchange places with those outside during these waits. It was not uncommon to see a bow gunner or a loader in a foxhole on security duty with an outside member of the squad. Surely this was the highest example of teamwork. These men had learned to appreciate each other's job. They had become a single unit.

These armored squads continued the advance across the Roer in February and on April 1, crossed the Rhine. Eleven days later, they were on the Elbe, 43 miles from Berlin.

Figures can be made to speak for or against anything by rearranging or omitting. But when figures may represent human lives, they become precious numbers. The following table has been taken from the record of the armored divisions that fought in France and Germany.

Armored Division	*Date Committed*	*Killed and Wounded*	*Tanks Lost*
3	29 Jun 44	8,940	632
4	17 Jul 44	6,236	216
6	27 Jul 44	5,194	196
5	2 Aug 44	3,043	116
7	14 Aug 44	4,781	360
9	20 Oct 44	2,894	162
10	29 Oct 44	4,009	181
8	24 Jan 45	1,392	58

The above table indicates that casualties in the 5th Armored Division were not more than would be expected. It would not be wise to conclude more. But those who were in that unit are convinced the close cooperation of infantry and tanks conserved men and matériel on many occasions.

The secret of combined infantry and tank fighting is to keep the same infantry squad with the same tank crew all the time.

The commander who thinks he can form the infantry-tank team by moving infantry into the tank assembly area and move out into an attack is groping in the dark. The winner of the next war may not be decided prior to the close combat.

Speed — Essence Of Armor*

by Lieutenant Colonel E. A. Trahan**

ALTHOUGH World War II furnished many examples of rapid advances in combat, in fact being characterized in its later phases, particularly in Europe, by a full fledged pursuit of a broken enemy, there were few examples of charges in the cavalry tradition, executed with a maximum of boldness and speed in order to attain surprise and minimize losses. This was not due to timidity or lack of skill on the part of commanders, but rather to the very nature of the campaigns themselves. The deadly weapons and the high degree of coordination and communication developed by all belligerents during the war precluded the use of such tactics in almost all cases. Yet a study of the few such actions which have been recorded underscores the fact that, although the optimum conditions required for their successful execution very seldom occur, the seizure of such an opportunity can spell the difference between success and failure of a mission. This is particularly true of armor, which, although capable of rapid and crushingly powerful movement, was so often characterized by slow, cautious attack, in which tank-infantry teams felt out, maneuvered against, and eventually took positions in sequence.

Such an action was the Allied attack against the Siegfried Line in October of 1944. Slow, costly, time-consuming advance was the rule, forced upon the attacking units by the very nature of their objectives. The Siegfried Line was Germany's border defense, and the first defensive line that the German Army had been able to man since the breakthrough in Normandy. The "Holy Soil" of Germany itself was at stake, and the defense of the line was, therefore, stubborn and often fanatical. The attack procedure generally called for an infantry-tank team, with artillery and sometimes air support. One of the several pillboxes, or a strongpoint, was selected for reduction. Smoke was laid on surrounding pillboxes and strongpoints to isolate the area under attack. A portion of the team laid down covering fire, to drive personnel in the open into the pillboxes, and blind the apertures. Then the remainder of the team moved in and reduced the area by direct assault and demolition. Once captured, the pillboxes were sealed to prevent the Germans from remanning the positions by means of small patrols which infiltrated during the night, a practice common during the early phases of the attack. After all of this was accomplished, the team reorganized to attack the next area. If such a method was impossible, direct frontal attack was the only alternative. Yet out of this creeping offensive came one of the best examples of a bold, swift tank charge, which gained the objective with negligible losses where slower, more powerful means had failed.

The incident occurred during the attack of the Second United States Armored Division, just north of Aachen. On the first day of the division's attack, October 4, 1944, the Third Battalion of the 67th Armored Regiment entered the fray, spearheading Combat Command B. The battalion crossed the narrow Wurn River into the small bridgehead established by the infantry in Ubach, where it found itself under incessant artillery and direct heavy caliber fire. The infantry had not been able to push out to the outskirts of the town, and all exits were commanded by enemy tanks, 88mm guns, and artillery fire. Under these conditions the force attacked, gradually pushed out and finally cut the north-south highway approximately 1,000 yards east of Ubach. This was accomplished in the face of direct tank, antitank, small-arms, and artillery fire. The attack was pushed despite mounting losses until a line was established late on the fourth about 300 yards east of the highway. (See sketch.)

The next morning the battalion again jumped off to press the attack, with the medium tanks leading. As the first wave reached high ground 1,000 yards east of the main road, they were caught in a withering cross fire of dug-in tank, antitank, assault guns, and artillery, as well as fire from the pillboxes to the east, north and south. The tankers hung on stubbornly, attempting to advance against this hail of fire, but were finally forced to withdraw into defilade after suffering heavy losses. From this position they continued to return the fire of the enemy guns until their ammunition supply was exhausted, and they were forced again to withdraw, this time to the jump-off line. Again, at 1 P.M., another attack was launched. In spite of friendly artillery fire, supporting fire from flank units, and covering smoke, the attack again failed, so completely were the German guns "zeroed-in" on the open ground which had to be crossed. Air support was impossible, due to the low clouds and drizzling rain which prevailed throughout the fight, and a flanking movement was precluded by the uniform continuity of the German line. The only approach possible was a direct frontal attack.

The morning of October 6 dawned gray and wet, and under the lowering clouds the Third Battalion launched yet a third attack. At 8 A.M. an artillery serenade was placed on every known enemy strongpoint, and simultaneously the tanks rumbled forward.

*Military Review, Command & Staff College, May, 1947.
**GSC, Second Armored Division.

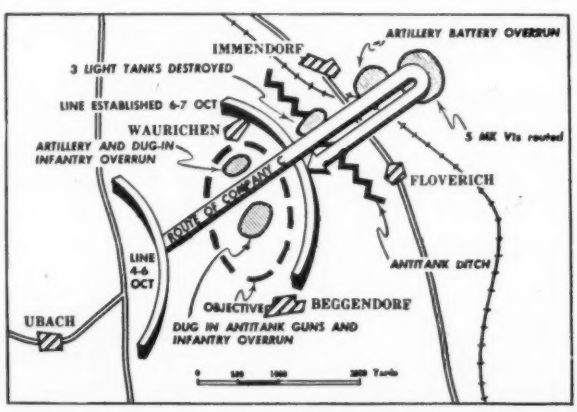
Again they were met by withering fire. The enemy had brought up strong reinforcements of armor and artillery, determined to check the tenacious attack. Direct fire from Mark V and Mark VI tanks was added to the increased weight of artillery, antitank, mortar, and small-arms fire. Movement outside of the protection of the tanks' armor was suicidal, so concentrated and sustained was the weight of the enemy fire. The Third Battalion's losses continued to mount as the M-4s slugged it out with the more heavily armed and armored Mark Vs and VIs. They gradually withdrew to the jump-off line, leaving a trail of blazing and knocked-out hulls behind them. At this point the losses suffered by the battalion left only a fraction of the original attacking force. In the two days of futile attack the battalion had suffered 63 per cent casualties in medium tanks.

Another attack with the mediums was obviously impossible. The enemy fire had not been diminished. On the contrary, it was steadily increasing as the Germans brought up new reinforcements. Units on the right and left were in as bad a situation as the Third Battalion. Fighting against the same type of opposition, their losses were correspondingly as great. An infantry attack would be suicidal. And the medium task force was so depleted that they could muster less than half of the strength with which they had made the first attack three days previously. But perhaps speed would succeed where power had failed. C Company, the light tank company, was holding the left flank and had suffered relatively light casualties. The minds of the commanders turned to this, their last hope. C Company was composed of 17 M-5 light tanks, armed with 37mm guns—weapons which would worry the heavily armored German tanks no more than a mosquito sting. The M-5's armor was light, so light that a hit by any of the German guns, except their small arms, meant certain destruction. But the M-5s had one thing the Germans did not have—speed. And in this one advantage their commander placed his hope.

C Company was withdrawn and a thin covering force placed in the line where it had been. As the light tanks formed behind the line of battered mediums, their commander outlined the plan. According to all available information and observation, no tank barriers and few mine fields existed on their route, at least as far as the objective, which lay on the high ground just south of Waurichen. The mine fields could be avoided, and if it were necessary to go beyond the objective, the light tanks might be able to negotiate the obstacles that lay beyond. They would be followed by the slower mediums in the second wave, with infantry following close behind to hold ground taken. Their mission was to overrun the enemy defenses with as much speed as possible, cause what destruction and disorganization they could, and allow the heavier elements and the infantry to come up and occupy the objective. The attack hinged on their success in overrunning the defensive positions before those defenses could knock them out. Speed and daring were the keynotes.

Gathering themselves, the light tanks burst through the lines of mediums at 11 A.M. on the morning of the 6th, throttles wide open and the prayer of every man in the line riding with them. At 35 miles per hour the M-5s screamed toward the enemy in a single weaving line. The German gunners must have thought them mad. Then, as the realization dawned that they could not track these fleeting targets in their sights, the seeds of panic were sowed. The tankers and infantry who were to follow watched in wonder. One thousand yards, and not a tank hit. The mud and soft ground which had made the mediums sitting ducks for the German guns were no great hindrance to the lighter M-5s. Two thousand yards, and still not a gap appeared in the charging line. The Germans were firing every weapon they had, and the line was alive with stabbing flashes, but the light tanks seemed to bear charmed lives. Individual Germans began to run to the rear. But every gun in the swiftly advancing line was firing, and they were cut down before they fairly started. Then the company disappeared in the low ground before Waurichen, and mediums and infantry moved forward behind them.

On the objective, the left of C Company overran a strongpoint of artillery and dug-in infantry. The right of the company overran a strongpoint of dug-in antitank guns and infantry at the same time. So rapid had the advance been that the positions were still manned. Without pause, individual tanks altered course, overran the guns, cut down the crews that tried to run, and left the remainder cowering in their holes. Light fire was being received from Waurichen and Beggendorf, but it was ignored, for now heavy caliber fire was being received from a point between Immendorf and Floverich. With undiminished speed, the company continued its headlong charge in that direction. Just east of Waurichen, the company ran into an antitank ditch. All but three of the tanks successfully crossed it. Those three, bogged down in the ditch, were immediately knocked out. But their battle-wise crews, well knowing the fate of a stationary M-5 under that murderous fire, had already abandoned their tanks and later made their



way to safety. These were to be the only light tanks knocked out in the engagement.

Once across the ditch, the company continued with unabated speed. The north-south highway and railroad between Immendorf and Floverich were cut. Here the artillery battery which was delivering the fire received just south of Waurichen was encountered. The guns were destroyed and the crews either killed or wounded, or left for the following force to take prisoners. Then five Mark VI tanks appeared. Knowing their own weaknesses and strength, the lights, rather than seek cover, continued their charge. The German crews vainly tried to track with their manually operated turrets, while the M-5s literally ran circles around them. Round after round of 37mm ammunition bounced off the sides of the heavily armored German tanks, causing little damage other than the discomfort of the crews inside. Outflanked, and in danger of being completely cut off, the Mark VIs retired in confusion. C Company, triumphant, awaited further orders. They had succeeded, brilliantly, where the slower, more powerful attacks had failed. By their skill and courage they had finally broken Hitler's "Westwall," for now they rested in the eastern fringe of the Siegfried Line. The pillboxes they had bypassed and the guns and infantry they had overrun lay behind them, at the mercy of the remainder of the battalion.

The mediums and the infantry, in the meantime, had come up behind C Company, and now occupied the objective. Mopping up was in progress, and units on the right and left were coming up on line, pressing the bewildered Germans hard. But C Company was 1,500 yards ahead of this line, surrounded except for a narrow corridor to their rear—their path of advance. The German reaction, once the company had stopped, would not be long in coming. Further advance of the main force was precluded by the immediate necessity of stabilizing the entire line, orders for which had already been issued. Maintenance of its extended position was, therefore, unsound, and C Company was withdrawn to the main line.

Originally, Waurichen was not taken, and fire from that town increased steadily during the night, so that at dawn on the morning of the 7th, a force was sent in which took the town, straightening out the line.

In its attack C Company had destroyed two batteries of artillery, several antitank guns, and numerous smaller arms. It had made possible the capture of several pillboxes, much matériel, and over 200 prisoners. It had routed a full platoon of vaunted German Mark VI tanks, and had advanced the American line almost 2,500 yards. This it had done with weapons and armor vastly inferior to that of its opponent. The disparity was made up in gallantry, skill, and raw courage. The battalion was later given the Presidential Unit Citation for its part in the Siegfried Line offensive, and no unit more richly deserved it than this company of light tanks, which had proved that a full-dress charge, skilfully executed under the proper conditions, still had its place in the tactics of the United States Army.

Every Cavalryman in the First Cavalry Division thinks of artillery pieces as his own special weapons and he also has a particular place in his heart for the Division Artillery's big prime movers. He has good reason to.

When it became impossible to use trucks in carrying supplies to Cavalry troops fighting in the rugged mountains of Western Leyte the Division Artillery's prime movers were pressed into service. Because of the heavy rain the roads had become impassable for trucks and it was possible only for the artillery tractors to plow through the mud and get the vitally needed supplies to front-line troops.

Forward observers of the artillery battalions became as much a part of the front-line troops as riflemen and they have been accepted as such. They ate, slept and lived with the front-line troops through each action.

During the heavy fighting on Luzon in the Philippines, artillery liaison planes were used time and again to keep Jap artillery silenced. The Japs developed a healthy respect for these little planes and feared them dreadfully. The front-line trooper learned to love the sound of those small planes overhead.

Such cooperation between artillery and front-line units has done much to improve the fighting efficiency of many an army fighting team. Each unit has developed mutual respect for the other and the result has been a winning and successful combat team.

Terrain on Leyte has been said by Brigadier General Rex E. Chandler, former First Cavalry Division Artillery commander, to be: "A Field Artilleryman's nightmare." Yet not once during the entire campaign did bad terrain prevent the field artillery battalions from going into action against the enemy. The troops, which these artillery battalions were supporting, were aware of this and it gave them not only confidence, but it kept their morale at a high level.

It is to the advantage of every unit commander to see that such respect and confidence exists between all the units of his command. It pays off in battle.—*Major Hal D. Steward in "The First Was First."*

Germany's Armored Infantry

*by Manfred Knayer**

Armored units from a German viewpoint are discussed in this article written by a German Graduate Engineer. "Some of the great actions in Russia failed," according to the author, "because the high commanders did not know how to use the armored units assigned to them." This article gives the reader an insight on the German attitude toward Armor.

FIRE power, mobility and protection are three essential qualities in every fight. It was Napoleon I who declared the combat value of an army to be a product of the mass multiplied by the speed.

The speed of the marching foot soldiers is low. It takes two hours to send a reserve battalion waiting six miles behind the first line to come to the front to stop a gap. Many efforts have been made to give more speed to the infantry.

Achill and Hektor fighting in front of Troja used horses and waggons to hurry to the battle-field; the Teutonic adversaries of Julius Caesar assigned a foot-soldier to each horseman, seizing the horse's mane to obtain a faster speed for moving to and during battle. Napoleon I assigned voltigeurs to some cavalry outfits, to jump behind the horsemen to travel short distances in a short time.

Mounted infantry (hunters) were to be found in all greater armies, using their horses not for fighting, but for transportation. Cavalry divisions often had mounted artillery with them and in the Zaristic Armies even mounted engineer outfits existed for some time.

The bicycle gives to man a three times higher speed than by walking and was used especially in less wealthy and more niggardish European armies in complete units with some success.

The invention of the internal combustion engine combined with the caterpillar track permitted armies to combine speed with protection by armor, besides the railway. Already before World War I, under the auspices of Moltke senior, in the German maneuvers infantry was transported on trucks and trailers, with the low speed of eight mph, but anyhow, it was the beginning. His son was hit by one of the greatest shifts of the Allied side. Paris was saved in the miracle at the Marne by the buses and taxis of Paris and London bringing troops to the points of decision.

The tank, son of the motor and the caterpillar track, became the victor of the formerly single battle-deciding machine gun. In his commencements, he was a failure because of imperfect tactics and construction. Both were improved and he became a great success through independently, cavalry-like fighting when not tied to the creeping infantry. But, similar to the ancient cavalry, he only could conquer a territory but not hold it. It was necessary to give the accompanying infantry higher speed, and protection. The result was the armored infantry, also called the motomechanized infantry.

The first essays also may be found in World War I. Colonel Estienne, the creator of the French armored forces in his first draft of a char d'assaut had provided to attach to each tank a trailer containing a group of infantrymen. The British constructed their Mark IX, an Infantry Carrier, able to carry 50 well-equipped

*German Graduate Engineer.

men and some machine guns behind the enemy lines. The first effort to take along infantry in tanks, made in the battle near Amiens in August 1918, was a failure but only because of technical imperfectness. Bad ventilation, vibrations and spoiled air made the doughboys unable to fight later when needed.

Between the two World Wars, outfits of motorized infantry appeared in all greater armies. In England, all mounted outfits were converted into motorized ones. In France, bicycle bataillons received the half track "dragons."

Germany did nothing about it. Permitted to have an army of only 100,000 men, she could save the money other countries had to spend for their army budgets. Some ex-officers joined foreign armies as advisers and experts. Many, also of the pensioned majors and colonels, attentively observed the things going on in other countries:

England, the native country of the tank, was inclined to use it as the successor to the cavalry, cultivating the independant fight.

France, considered the tanks as an armored artillery, as a servant of the infantry. Only reluctantly the idea of independant use was introduced in the reglements.

Russia, systematically trying out everything, even developed a threefold system to be used by artillery, air corps and armed forces:

The NPP-groups had to help the infantry fighting in close connection with them.

The DPP-groups had to aid the infantry but in independant fight.

The DD-groups had to act independantly over long distances.

The forced revival of the Prussian militarism in connection with the German solidity and thoroughness, created an army of monstrous power, in which the armored forces were to play a leading part. They even intended to become an independant part of the armed forces, besides Army, Navy and Air Corps.

Principally, the tanks were to fight independantly. To help the infantry was a task of the assault artillery, all-armored self-propelled 3-inch guns.

On the other hand, not only motorized and motorcycle outfits were created. The tanks, not able to do all kind of work, got their voltigeurs, got an infantry to match them. The Armored grenadiers (Panzergrenadiere), as they later were named by Hitler personally, grew a new and efficient branch of service. Together with tanks, armored artillery, engineers and signalmen, they completed the Armored Division.

The vehicles—a light and a medium type of six and nine tons—had a form like coffins. On top, they were open permitting the men to get out quickly and for good observation they had a periscope. Sometimes, screens were arched over the top to protect against hand grenades. The side plates welded together and slanted, about one half inch thick, gave a reliable protection against infantry fire and shrapnels.

The undercarriage was of the half-track type, as it was used also for many other purposes. The non-driven front wheels had shotproof tires. The tracks consisted of rubber plated steel links. The bogies had a large diameter to keep low the number of revolutions and the temperature of the tires to avoid a getting the rubber away from them. In order to place a greater number of bogies to have a low ground pressure, they were hidden one in another. The only trouble was that to exchange a middle bogie, you had to take off the two other wheels too. A motor of about 80 resp 150 Hp permitted a speed up to 35 mph.

The crew of the smaller type was half a group, the medium car transported a complete group, about 12 men.

The standard armament of these vehicles, besides the semi-automatic rifles and submachine guns of the crew, were two machine guns, mostly MG 42, firing nearly 2000 rounds per minute; one mounted in front behind a slanted shield, the other one on a simple post in the rear, able to fire on airplanes. But there was quite an arsenal of weapons to be mounted on these weapon carriers: From the 2 cm (0.8) anti-aircraft machine gun over 3.7 cm (1½ inch) and a 5 cm (2 inch) anti-tank gun up to even a 7.5 cm (3 inch) short cannon, besides the handy 81mm (4 inch) trench mortars and flame throwers.

A small ultra short wave set was placed beside the driver.

These armored trucks, equipped with a medium wave station besides the small set, were used as command cars. They also made themselves useful as ammo carriers and finally they could do good work as an armored ambulance bearing wounded through artillery fire and even from surrounded units through enemy country and partisans to more backwards situated positions.

A late light type German armored car carrying an 81mm (3-inch) trench mortar. Cases for tools and accessory used as additional armor.

Three medium cars each containing one group, and a light car formed a platoon, and three platoons a company, consisting of about 15 armored half-track vehicles. Like the other infantry, three light and one heavy company made out a battalion. The regiment consisted of three battalions, a staff company and a big appendix of supply and maintenance outfits.

The Armored (tank) divisions got assigned armored infantry units and had an approximate structure as follows:

1 Reconnaissance outfit
2 Tank Regiments
1 Armored Inf.-Btl.
1 Arm. Artill. Regt.

Engineers, signal, medical, maintenance and supply outfits. The Armored Infantry Division:

1 Reconnaissance outfit.
1 Tank Regt.
2 Armored Inf. Regts.
1 Armored or motorized Art. Regt.

Engineers, signal etc. outfits.

There was also a number of independant miscellaneous units existing, for special purposes or remainders of torn units.

The Armored Infantry discerned several manners of fight:

1. Collaboration with the tanks.
2. Independant fight;
   and
   a. Fighting from the vehicles
   b. Fighting dismounted, like infantry.

To ride sitting or lying on the tanks as often done by the Russian infantry is a peculiar thing. It may be all right as long as there is no enemy interference, but mostly tanks attract fire as a light entices the gnats, to the disadvantage of the unprotected riders. As a rule, also these armored vehicles were used only as a fairly safe means of transportation, and only occasionally as a moving fortress. They used all available cover to hide their movements preferring uneven terrain—they were seldom to be found in the African plains—but the crews never were afraid of getting out. To hold a beachhead or an important place they had to build their dugouts, also under arising antitank fire they had to dismount quickly and the vehicles were to move to the nearest covering place.

A medium type German armored vehicle mounted with a 3.7cm antitank gun.

The tasks of the armored infantry were various but almost exclusively the attack. Undisturbed by infantry fire and shrapnels, together with the tanks, protected by them and vice versa, they broke the first breach in the enemy lines. They formed the shaft behind the spearhead of the tanks. They conquered territory, combed it out and held it, especially important positions and points. They were a precious, mobile reserve for the higher commanders, able to march 300 miles in one night. Their mobility gave them always a chance of surprise.

The efficiency of this new weapon depended not only on their technical qualities, and on the fanatic struggling of the spartanic educated men and officers always gambling with a high stake. A very important factor was the existence of elaborate reglements and instructions on fight, strategical and tactical use, of these "fast units" and another point was a thorough training and schooling of all members.

Of course these are also disadvantages to be mentioned: Besides the long tail of maintenance and supply outfits there was the absolute necessity of fuel. When advancing too quickly and cut off from the following troops, they had to get their supply from the air, a very expensive thing for the German army was obliged to save Gasoline at any time. In the tank training centers, heating gas in high pressure tanks and even "gas-in-pieces," produced from wood through generators had to be used. The air raids on the motor works and factories caused an increasing decrease of the output of armored vehicles. The losses in battles in retreating, as it had become a custom since Stalingrad, are still higher than in advancing. It is much more difficult to salvage a car broken down and to bring it back when the front is also moving backwards. So the rank: "Armored Grenadier" more and more became a mere name.

As in all Armies, also in the German Army reactionary elements were to be found, of course, not because they intended to weaken the Prussian Militarism. They only were of a mental shortsightedness paired with a good portion of ambition. There was talk in the army that some of those monocle-wearing generals preferred a neat horse tail to a complete armored division. Some of the great actions in Russia failed because the high commanders did not know how to use the armored units assigned to them. In our quickly changing times everybody is doing well to prove to himself whether or not he is attached to old fashioned things as Raeder was to his high cornered collar.

Despite such reactionary movements, the armored grenadiers had an essential part in the German war successes and it will be of good use to study this branch of service. Besides the airborne units it is the most modern and efficient form of infantry.

What Would You Do?

*by Major Kenneth T. Barnaby, Jr.**

SITUATION:

YOU are the commanding officer of the 53rd Cavalry Squadron (Proposed T/O), and have been assisting in the liberation of Bigtown which our forces occupied last night. Bigtown is a large city of 500,000 population located on the west bank of the Riley River. This river is about 200 yards wide and an important communication link in the area. The severe loss of Bigtown to the enemy is emphasized by the fanatical fight he made to hold it in which were employed his crack Elite Troops. You have been attached to the 332nd Infantry Division and ordered to push north about 25 miles as a part of the perimeter defense of the Bigtown area while the Corps completes the clearing of the town and reorganizes for an announced intention of crossing the river at some later date in the near future.

You have under your command your squadron (less Troop C) plus the 3rd platoon of Co A, 5th Heavy Tank Bn. You have given Troop A the left side of your area with axis Bigtown, Foxton, Georgeville, Howtown and north. Troop B axis Bigtown, Abletown, Bakerville, Charlieburg, Dogtown north. Troop B is responsible for Kington. Troop A is responsible for lateral contact with Troop B from Foxton and Georgeville and Howtown. Troops G and F are in reserve near your Command Post at Foxton. Troop E is following Troop B axis, always keeping one battery in position to support both troops.

It is September 29, a nice, cool, clear day.

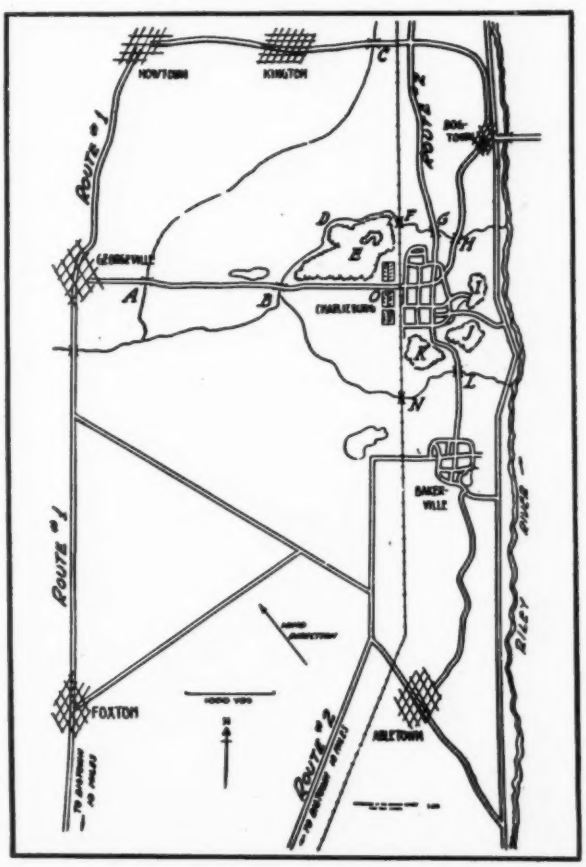
At 1500 the leading platoon of Troop B is stopped cold at Bridge L by flat trajectory fire, estimated 88-mm, received from behind Woods K. They also receive small-arms and automatic fire from haystacks in field just south of Woods J and K. In retiring to Bakerville, they receive a heavy barrage of large caliber mortar, estimated 120mm.

Troop A has met no enemy. Their leading platoon is just south of Howtown which is clear. They send a team to make contact with Troop B from Georgeville. Bridge A and B is reported intact, but considerable small-arms and automatic fire is received from Woods E and three rounds of flat trajectory fire from vicinity of O. There seems to be a large factory of some kind at O with a tall water tower in the middle of it.

Shortly thereafter Troop A reports Howtown is clear but their liaison team sent from Howtown to contact B Troop in Kington (which is clear) did not meet any elements of Troop B, so pushed on east to Bridge C. Bridge is blown and as they dismount to look at the bridge they receive machine-gun and rocket fire from crossroad just E of Kington. Team remained in Kington pending your orders.

You report this to division with the additional information that the entire area, Bigtown north, is flat as a pool table. Because the Riley River floods regularly, all roads and railroads are constructed about six feet higher than the adjacent ground level. In addition there is a dike 15 feet high running parallel to the river with a narrow roadway along the top.

The commanding general informs you that from your reports and other sources of information, it appears that the enemy is holding a bridgehead around Dogtown undoubtedly with the idea of attempting a buildup to retake Bigtown. The bridge at Dogtown has been bombed several times but never directly hit



*Instructor, Ground General School, Fort Riley, Kansas.

and is probably still usable. He desires that you attack and clear Charlieburg tomorrow. He further informs you that he will tentatively attach the following troops in addition to those you already have, in your squadron for the operation.

A Company, 6th Medium Tank Bn.

C Company, 12th Bn, 13th Inf.

156th Armored Field Artillery Bn (105mm How SP).

These tentative attachments, except the FA, will report to your CP not later than 0200. The 156th AFA Bn will report to you not later than 1800 tonight. He desires that you report to his CP at midnight with your plan of attack.

You initiate strong reconnaissance of the Charlieburg area that night.

At midnight you meet the CG with your plan. From your patrols, one of which bagged three prisoners, and from civilians you have gathered the following additional information:

1. Bridge at Dogtown is slightly damaged but still usable.

2. Estimated 400-450 Elite troops in Charlieburg and approximately 100 in Dogtown and east of Kingston. Reinforcements are due about 1500 the following day, number unknown.

3. Three or four medium tanks and at least three 88mm SP guns in Charlieburg.

4. One battery each of large mortars and rockets in position just north of Woods I.

5. Haystacks in field south of Woods J and K are decoys, being steel slabs behind which are crouched one enemy with an automatic weapon or rifle.

6. Woods at east are dense but little underbrush. Ground in woods is very soft and not navigable for vehicles. Ground east of Route One and north of Georgeville-Charlieburg road is also marshy, not navigable for vehicles. Ground south very firm. All creeks fordable for men but not for vehicles because of steep banks.

7. Bridges A, B, F, H, L, and north are intact. Bridges C and G are destroyed.

At the midnight conference the CG approves your plan and gives you an air strike consisting of six P-47's for tomorrow available to you between first light and 1100 hours. The Tactical Air Control party and forward Air Controller will report to you by 2100 hours tonight. He also confirms the units you will have to augment your forces as those he outlined in the afternoon. He attempted to get Troop C back for you but failed. The attack is ordered to take place as close to 0600 hours as possible. First light 0537 hours. You will be prepared to hold Charlieburg until relieved at dark 1 October. Division will be responsible for security from RJ/M south.

REQUIREMENT:

1. What is your plan of attack?

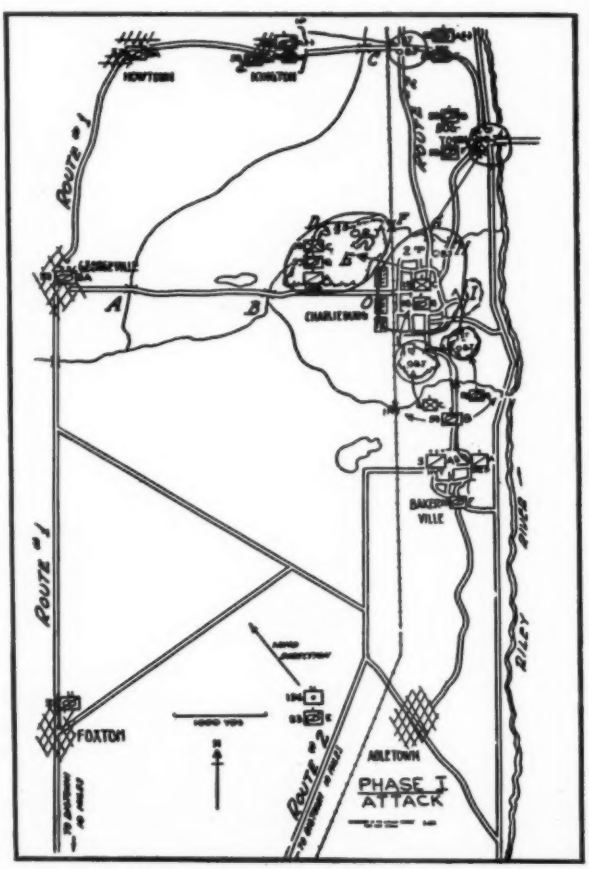
2. Assuming that your attack is successful, what will be your dispositions to hold Charlieburg in the face of enemy reinforcements due to arrive the following day? You will have to hold Charlieburg for at least 24 hours after you take it. You will not be responsible for security south of Bakerville.

SOLUTION:

Requirement 1.

a. Brief Estimate:

My mission is to take Charlieburg and hold it for a minimum of 24 hours. My attack is to take place at 0600 hours, 30 September. We are faced with a possible enemy reinforcement of his troops in the area by 1500 hours, 30 September. We must occupy and hold Charlieburg and Dogtown and be prepared for an enemy counterattack in force by 1500 hours. It is important to seize the bridge at Dogtown, although enemy reinforcements may arrive from the N rather than the E. If the bridge is secured intact division may elect to authorize a bridgehead defense to the east of Riley River in order to hold the bridge for our own future use. The troops at my disposal are my squadron (less Troop C), one platoon of heavy tanks,



one company of medium tanks, one company infantry, one battalion of artillery (105mm SP) and an air strike by 6 P-47's, available between first light and 1100 hours. First light is 0527.

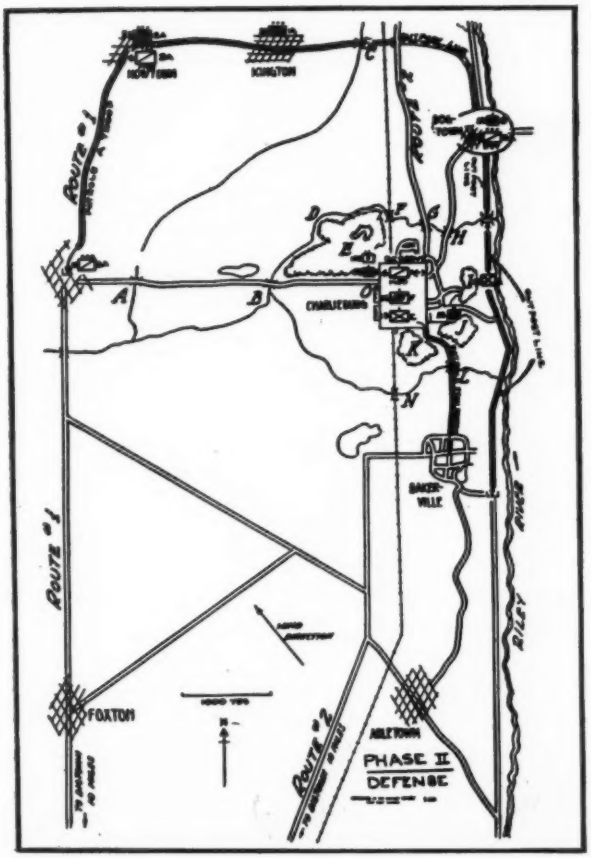
b. Plan:

1. Troop A remain in position Georgeville, Howtown, Kington to provide left flank security.

2. Troop B remain in position in vicinity of Bakerville dismounted to positions on line north through L to Riley River. Route two boundary between units. Inf Co on left with woods K initial objective. Troop G on right with woods J initial objective. Attack at H hour.

3. Medium tank company move up to vicinity of Bakersville during darkness. Support crossings of Troop G and Inf Co by fire and join infantry troops on their first objective by most expeditious means. Crossing sites in order of preference are: Bridge L, bridge N and the dike.

4. Heavy tank platoon takes position in north edge of Bakerville prior to H hour. At H hour their mission is to destroy the camouflaged weapons positions south of Woods K and J and the water tower at O. Upon capture of initial objectives by Troop G and Inf Co, tank platoon will go into reserve.



5. Light tank company move up to vicinity of Bakerville with medium tank company and assist crossings with fire. Light tank company remains temporarily in reserve.

6. Artillery Bn, with Troop E (less 1st platoon) attached, move into position selected by Bn commander from which it can cover entire area under attack. With artillery Bn commander, prepare prearranged concentration plan for preparatory fires and supporting fires.

7. Request air mission rendezvous over Bakerville at H plus one hour and remain on air alert for limit of endurance. Mission to be directed against any target holding up the advance which cannot be economically removed by ground forces.

8. At H-one-half hour artillery preparation will begin. At the same time Troop A, minus one platoon, with a platoon of assault guns attached will launch a dismounted attack from the vicinity of Kington with the objective of taking the CR East of C and misleading the enemy as to the location of the main attack.

9. At H hour the attack from the south will be launched under the immediate command of the squadron executive officer. The attacking forces will reorganize on the initial objective and there be joined by the medium tank company and platoon of heavy tanks. This force after reorganization moves against its second objective, Charlieburg proper, followed by the third objective, the woods area at E.

10. When the second objective is taken and the bridge at H is uncovered Troop B and light tank company will be committed to attack Dogtown and secure the Riley River bridge.

Requirement 2.

1. If bridge over Riley River at Dogtown is taken intact, secure by shallow bridgehead and request permission from division to extend bridgehead to the east. If permission refused withdraw to Dogtown and prepare bridge for demolition.

2. Troop A, with one platoon medium tanks attached, to outpost line; bridge C, Kington, Howtown, Georgeville.

3. Troop B, with platoon heavy tanks attached, to outpost line; bridge in dike east of H. Dogtown, CR east of C, to bridge C.

4. Troop G responsible from bridge in dike east of H along dike to Bakerville with right flank refused through Bakerville.

5. Patrols, from reserve, from Georgeville to Bakerville.

6. Squadron reserve in Charlieburg: medium tank co, Light tank company, and attached Inf Co.

7. Artillery Bn and Troop E under control of Artillery Bn CO in Charlieburg.

OTHER BRANCHES

Lieutenant General R. A. Wheeler

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"One hundred and seventy-two years ago this June, at the request of General George Washington, the Continental Congress established a Corps of Engineers as a part of the American Revolutionary Army. In March 1802, the Congress of the United States created the Corps of Engineers as a permanent branch of the United States Army, then being reorganized as a permanent military establishment. Its continuous existence since that date marks it as the oldest professional service of the Army.

As the technical branch of the Army, the Corps of Engineers permeates the whole of the Army in all of its branches perhaps more completely than any other service. To understand this, it is necessary to first understand the organizational set-up of the Corps of Engineers.

A substantial part of the logistical planning activities are carried out in the Office of the Chief of Engineers, but the field execution of these plans is carried out by Engineer troops who are attached to specific Army commands and are under the command of the unit to which they are assigned. For instance, each permanent army installation, such as an Armored Cavalry Post, has an Engineer unit assigned to it. The Engineer officer in command of the unit is under the direct command of the Post Commander and receives his orders from him. He carries out the orders according to the plans and specifications worked out in the Office of the Chief of Engineers. The same is true of theaters of operations, and even of advanced combat units. Highly trained for specific types of Engineer work, Engineer units are assigned to Army organizations, large and small, to do the specific type of engineering job which needs to be done. Port Battalions construct ports; pipeline units lay pipelines; bridging units build bridges. Consequently, Engineer units are constantly on the move within the Army organization.

As a technical service, created to serve the Army in all of its branches, the Corps of Engineers, and I, as Chief of Engineers, welcome the opportunity extended by the ARMORED CAVALRY JOURNAL's 'Other Branches' department to improve our mutual acquaintanceship with each other. Through this better understanding we can better carry out our mutual missions as individuals and as soldiers."

R. A. Wheeler

Lieutenant General, C.E.,
Chief of Engineers.

CORPS OF ENGINEERS

Engineers – Army's Backbone

*by Colonel W. D. Luplow**

"Actually, only part of the Army ever comes to grips with the enemy. Most of its energy is devoted to living and moving. Behind each foot of territory taken from the enemy are the months of preparation often forgotten in the more dramatic climaxes of war. The Corps of Engineers does a great part of this preparation.

THE emergence of the Armored Cavalry as a permanent and extremely effective striking arm of today's Army is tangible evidence that quick, efficient movement is the keynote of successful modern warfare.

Yet the movement of any military force, large or small, is efficient only to the degree that the logistics of that particular movement have been successfully conceived and executed. Consequently, warfare today is essentially a war of logistics—of production, transport and supply, of increasing the combat power of friendly troops by both construction and destruction, and of facilitating the movements of friendly troops while impeding those of the enemy. It is, in short, what General Douglas MacArthur has aptly called, an "Engineer's war." This is in the sense that, in the final analysis, it is the engineer who must marshal a nation's work power at its greatest and speediest efficiency and place it at the disposal of the military command.

The marshalling of American work power—the providing of design, material, and equipment during World War II to construct war plants, posts, camps, stations, airfields, utilities, pipe lines, storage facilities, docks, roads, bridges, and other essential construction in both this country and wherever over the world our Army needed them, was the primary assignment of the Corps of Engineers. For example, in the United States alone, Army Engineers completed approximately 3,000 command installations, some 300 major industrial projects, and hundreds of miscellaneous industrial facilities —all essential to keeping the Army equipped and able to move. The command installations included 500 camps, 765 airfields, 167 storage depots, and numerous training schools, ports of embarkation, hospitals, and other facilities. Not only did the Engineers build these installations, but they also continued on the job and maintained them.

Simultaneous with this construction and maintenance assignment in the United States, the Army Engineers built outlying bases on the Azores, Trinidad, Newfoundland, Hawaii, Panama, Bermuda, Brazil, Iceland, and other places. At the same time, Engineer units were attached to every service and command in the theaters of operations overseas.

In light of the above illustrations, it is understandable that the Engineer troops should have reduced their primary mission to the working slogan "Keep the Army Moving." For, today, it is axiomatic that without the Engineers, infantry cannot move onto foreign beaches, armored forces cannot surmount enemy fortifications or bridge hostile waters, and planes cannot advance beyond their initial base. Behind the tremendous striking force that landed on the Normandy beach lay two years of engineer production at home and building supply lines and fighting bases in Great Britain. In England, the Engineers built all the construction needed—with the exception of Signal Corps installations—to house, equip, and train the world's greatest invasion army. In addition, the Engineers provided the necessary information on tide conditions and on the height of waves through which assault craft would have to pass. They constructed large-scale models and detailed maps of what assault troops would find when they hit the beaches. All military maps in all theaters of operations were prepared, printed, and distributed by the Engineers, often constituting the first modern, up-to-date maps of the area. The quantity of maps consumed by U. S. field armies became no longer measured by pieces, but by tons. Thirty tons were an average daily requirement. For the invasion of France alone, the Engineers

*Office of the Chief of Engineers.

furnished 116,000,000 military maps.

Perhaps the broad concept of the modern army moving against enemy forces can best be understood by envisioning a spear with a sharp, arrowlike head and a long shaft. To illustrate, the force that landed on the Normandy beaches on June 6, 1944, was a spearhead. Pushing this spearhead was its shaft, reaching back across the Channel to the United Kingdom, and back still further to the production centers in the United States. But before the spearhead finally could be launched at the heart of the Reich, the shaft had to be prepared, the impelling force built up. Thus, the first two years in the European Theater were consumed largely in securing supply lines and converting the United Kingdom into an invasion springboard. Thus, too, it is easy in the dramatic spotlight of combat to lose sight of the huge and complex organization of a modern army.

Actually, only part of the great army ever comes to grips with the enemy. Most of its energy is devoted to living and moving. Behind each foot of territory taken from the enemy, behind each bombing raid over Germany and Japan, are the months of preparation often forgotten in the more dramatic climaxes of war. Two years before the invasion of France, the Engineers began to prepare a fighting base in the United Kingdom. From this base, the air bombardment of Hitler's industrial backbone was launched. From this base, a substantial part of the African invasion was launched. And from this base—the invasion of Europe was launched. First action against Japanese forces and against Western Europe during the two years of invasion preparation was from the air. But even air power is earthbound. It is bound to the airdromes for take-off and landing. Requirements for roads, runways, and hardstandings of the U. S. Army Air Forces airdromes in the European Theater of Operations alone were equivalent to the construction of a 20-foot concrete highway from New York City to Moscow. And there is more to an airport than just runways and hardstandings—there are hangars, shops, operational quarters, fuel storage, billets. That a full year elapsed between the arrival of the first U. S. troops in England and the first 300-bomber raid—19 months before a 1,000-plane raid—may sound long to the uninitiated. The miracle of it is appreciated, however, when it is understood that construction on this island base alone by Engineer troops was equal to a lifetime of work for 15,000 men—eight hours a day, 6 days a week, no time out for training or vacation.

While the base itself was being created as a springboard for launching the armored forces, infantry, artillery, and other services, Engineers had to prepare for the reconstruction of that which would have to be destroyed in Europe. Damage on the Continent would be unprecedented as a result of allied artillery and aircraft which would deliver mighty blows against bridges, marshalling yards, communications centers, and supply depots. What would not suffer from bombardment, Nazi troops would destroy by demolition. Consequently, to keep the invasion army moving, materials and supplies had to be on hand to make repairs quickly and efficiently. For instance, heavy railway bridging had to be ordered two years in advance so that it could be fabricated and delivered in time for the invasion.

The assignments carried out by the Corps of Engineers in England were repeated on a smaller—but much more widely distributed—scale in the Pacific, China, Burma, and other theaters of operation. In the same manner, the Normandy invasion was a large-scale model of practically all of the small and large invasions of the war. It further illustrates the jobs of Army Engineers in its assignment of keeping armies moving.

On the morning of June 6, 1944, Engineers carrying high explosives stormed the shore from small boats, and under withering artillery and machine-gun fire, blasted gaps through steel obstacles and antitank walls—first ramparts in Hitler's defense of Fortress Europe. Through these gaps poured the infantry and armored troops in unending columns to come to grips with the enemy. The battle for the beachheads, soon to grow into the Battle for France, was begun. Up and down the grim stretch of hostile Normandy coast the traditional Engineer mission of clearing the way for the armies again was being fulfilled.

But getting men on the beach is only part of an invasion problem. Supplying them is the other. The modern army is no dainty nibbler; each day it consumes thousands of tons of ammunition, gasoline, food, clothing, medical supplies, and hundreds of other items, any one of which may spell the difference between victory and defeat.

As assault troops smash inland from the beaches, the Engineer Special Brigades organize the beaches to pick up the task of feeding the men the things they need for battle. Theirs is the job of putting supplies ashore and across open beaches without benefit of port facilities. All veterans of an invasion operation know the scene. A beach has all the activity of a bustling port. Bulldozers chug to cut new roads for movement of supplies in the wake of the advancing armored and ground troops, and to bury enemy fortifications. They do whatever has to be done to ease the movement of men and supplies into the interior. Trucks roll from the beaches in continuous convoys. In the war of logistics—of supply—the Engineer units are under terrific pressure to make victory in the first battle a reality.

It has been said that three things take the beaches in modern global war—air power, fire power, and GI guts. But behind these is yet another power—work power. War is force; the side with greater force can impose its will upon the side with lesser force. American work power is the most overwhelming force in the world today. Delivering this force from home-front production centers such as Detroit, Philadelphia, Birmingham, and Los Angeles along the shaft of the spear to the spearhead were the Engineer units—each trained in

its specific type of job.

Again using the invasion of France as an illustration, U. S. troops raced ashore on the beaches and pushed westward for Cherbourg. This port was a necessary objective because autumn storms in the Channel would prevent continued use of beaches—necessary, too, because invading armies would grow and fan out, making captured port facilities essential in supplying them. Flooded areas, mine fields, road blocks, blown-out bridges which had spanned innumerable streams criss-crossing Normandy, emphasized the Engineer mission of keeping armies moving. Consequently, pointing the spearhead were Engineers who threw tactical bridges across the Taute, Vire, and Douvre Rivers under devastating artillery fire. Bridging was a repetitious job. The enemy knocked them out again and again with massed artillery. And as fast as he knocked them out, Engineer soldiers restored them.

Behind the combat soldier other Engineers keep armies moving, too. They make the shaft of the spear keep pace with the spearhead to make sure no item essential to the fighting man's progress is lacking. To accomplish this gigantic, globe-circling job during World War II, they constructed a chain of ports and anchorages and laid a carpet of airfields around the world. The rate at which the Engineers often were called upon to construct airfields, for example, is well illustrated by the fact that in Belgium and France the IX Engineer Command built 100 fields in 90 days. Often in both Europe and Asia, fields were laid well in advance of the infantry under heavy enemy fire.

There is no way of reckoning the miles of roads constructed for the transportation of men, supplies, and ammunition. Some of the roads, such as the Ledo Road into China, received world-wide acclaim; all of them were important and contributed to our final victory. And roads called for bridges. It has been said the Allies rolled across France and into Germany on a chain of Bailey Bridges laid down in advance of even the armored troops and often under fire.

A sufficient number of miles of railroads was constructed or rehabilitated overseas to link New York City and Tokyo with a double-track line. When time was of the essence, immediately following the St. Lo "breakthrough" of General Patton's Third Army, five Engineer regiments performed a miracle in railroad construction. These regiments rebuilt 60 miles of railways, five marshalling yards, seven bridges, cleared demolished tunnels, and restored water points—all within two days.

Also keeping pace with General Patton were the pipe-line Engineer troops, who laid from 15 to 50 miles of line a day in France. Other similar units built a supply line into China that many experts said couldn't be done. The oil pumped to and across France, incidentally, wasn't all transported to France by tankers; some was piped across the Channel from England by way of another engineering miracle of the war. A total of 11,000 miles of pipe line was laid—enough to supply normal consumption for half the United States in peacetime.

The Engineers built and rebuilt great seaports—enough of them to handle more tonnage than New York, Boston, and San Francisco combined. Cherbourg is an example. The Germans left Cherbourg completely ruined and useless, or so they thought. Yet, in a matter of weeks, the Engineers had the port in full operation, and by VE-Day they had it actually handling more tonnage than ever before in its existence.

In the Pacific theater of operations, the Engineers were faced with difficulties vastly different from those found and overcome in Europe. In Europe, the British Isles formed a base from which to mount our invasions. In the long reaches of the Pacific there was nothing except volcanic islands and jungles. The Engineers had to start from scratch. With heavy equipment, they literally tore the jungle tops off the islands and built bases, camps, airfields, and ports. The very tempo of the war against Japan was measured by the speed with which Army Engineers were able to construct the far-flung staging areas and bases for operations. Engineers, who at home built the great secret laboratories, plants, and, in fact, the "city" in which the atom bomb was produced, also built the fields from which rose the plane carrying the bomb to Japan.

Surrender of an enemy country usually decreases the activities of other army service troops. But not for the Engineers. For instance, the end of the war in Europe meant that thousands of troops and their equipment would be immediately shifted to the Pacific. This meant that huge marshalling camps and debarkation installations would have to be provided in a minimum of time. Engineer troops who had been building railroads and bridges did not find their load eased by the peace. They immediately were set to work on a round-the-clock schedule to build such facilities at the seaports.

When peace came to the Pacific, the camps erected by these Engineers found a new and happier use—as debarkation points for troops homeward bound. But as is usually the case, the Engineers—who had been first to land in force in the European Theater, at Iceland—were the last to leave. There was still plenty of work to be done in Europe and Japan. Quarters and the facilities needed by the occupation forces had to be constructed. In areas where American troops would be quartered for any length of time, the rail lines and highways had to be permanently restored for normal usage. Today, Engineer troops are building permanent quarters, hospitals, and other facilities for the occupational troops. In addition they are remaining on the job and maintaining them.

Engineer troops have two sayings that neatly sum up their military mission. They say that the Engineers are the "first in and last out." They also say that "while other troops sweat out an assignment, the Engineers just sweat."

TRANSPORTATION CORPS

"Classroom Railroading"

*by Jim Lane**

Instruction in railroading is conducted at the Army Transportation School with an elaborate and minutely detailed scale model railroad that is complete to the last nut and bolt on her shining miniature locomotives. The model is the property of the Baltimore and Ohio Railroad and is loaned to the School for training purposes.

A THUNDERING freight pounds down the right of way, riding the outside track, but her speed is no match for the sleek trim Diesel powered streamliner that is rapidly overhauling her. She hammers along to a switch and is quickly cut over to the center track; continuing doggedly ahead with her lading cargo, as the slender passenger train passes like a silver ribbon;—At the next switch point the ponderous freight rumbles back onto the outside track, and the steady forward progress of both freight and passenger train continue without the loss of a moment's headway.

Miles farther along the line another huge freight grinds to a halt. Two red lights in a horizontal position have warned the engineer that the block (or section) of track ahead is not clear. In a brief interval the lights are twin amber beacons at a 45 degree angle, indicating that the next section is clear, but that the one beyond is occupied. The freight starts to move slowly ahead—and swings back into her steady forward pace in response to the two vertical green electrical eyes that indicate "clear ahead."

A class of 50 Transportation Corps officers watch with interest as an instructor explains the various phases of operation—and the old thrill of railroading is combined with valuable education at Fort Eustis' Transportation School—for the entire lesson is conducted with an elaborate and minutely detailed scale model railroad that is complete to the last nut and bolt on her shining miniature locomotives.

The model is the property of the Baltimore and Ohio Railroad—loaned to the Transportation School at Fort Eustic, Virginia for training purposes.

Set up in the large recreation hall, the model occupies a waist high platform that is 46 and a half feet long by 16 feet wide and reproduces the three track operation which is typical of the B & O's Cumberland Division.

Regular classes, 50 students in each, are conducted from 1 until 5 P.M. every day. Each class lasts for an hour, and 200 officers or enlisted men each day are instructed in its operation.

The scale is "0" gauge, or one quarter of an inch to the foot, required more than 1500 electrical connections between the various operating sections and its large control panel box that houses some 74 busily clicking relays. More than eight hours of work are required in its setting up.

The model is unique in that it operates entirely on a central train control system exactly after the fashion of a typical railroad division.

The center track is wired for signal operations in both directions and the entire road divided into blocks—a block being that distance between any two sets of signals, employing a positive train control system that

*Transportation School, Fort Eustis, Virginia.

makes it impossible for a train to move into the block ahead until it is clear—or to move forward if a switch is set against it.

With this type of control and by "cross-overs," it is possible to conduct operations on three tracks that would normally require four.

The model boasts 170 pieces of rolling stock, including 19 locomotives which represent the latest development in steam types for freight hauls and streamlined Diesels for passenger runs.

Among the Diesels are the famous "Capitol Limited" streamliner that operates between Chicago and Washington; the "Royal Blue," a steam-powered streamliner of the New York-Washington run, and the "Columbian." Fast freights are handled by "Mikados" and "Santa Fe" mallets and virtually every type and variety of car is represented right down to the "Big Hook" for wrecks.

Buildings and structures such as might be found along the right of way are faithfully represented down to the last detail. Terminals, stations, roundhouses, turntables, signal towers, water tanks, coal tipple and a host of others are carefully laid out.

So detailed is the planning of the model, that even the speeds at which the various trains operate, are scaled. The three-track circuit represents nearly a scale mile of road, and a train covering the distance is approximately 44 seconds in traveling at a scale speed equivalent to 75 miles per hour.

Major Harold W. Miner (right), an instructor in the Transportation School's Railway Section at Fort Eustis, Virginia, points out a signal tower, as Colonel Stephen W. Ackerman (center), School Commandant, and Major Howard W. Martens, Chief of the Railway Section, watch the intricate B & O scale-model railroad in action.

The model was brought to the Transportation School through the combined efforts of Colonel Stephen W. Ackerman, School Commandant, Mr. Lawrence W. Sagle of the Baltimore and Ohio's Public Relations Office, and Colonel K. W. Thom of the Transportation Department at Second Army Headquarters in Baltimore, after First Lieutenant Leslie Hesketh, Jr., Chief of the School's Research and Development Branch had initiated inquiries on the possibility of borrowing the exhibit for training purposes.

The entire recreation hall is occupied by the model and the large group of additional kindred items provided by the B & O. On display are such interesting additions as cross sections of various types of rails ranging all the way from the old stone sill and iron strap variety of 1830 to those in use today.

Models of locomotives of former times include a replica of the "Tom Thumb" of 1829 and a grasshopper type of 1836 vintage;—one of the first to have a cab for the engineer and the first to operate in the State of Virginia. The cars it hauls are the replicas of old Imlay coaches built by Davis, Winans & Gartner in Ross Winans' shop in Baltimore by Robert Imlay of Philadelphia—fancy affairs with open sides, upper deck, and fringed tops that must have been a stirring sight in their time, but a far cry from the sleek passenger cars that whiz over the rails today.

The walls of the hall are covered with pictures that sketch the history of American railroading for more than a century—from the "Pioneer" of 1829—first railroad passenger car in America, a quaint looking horse-drawn affair to the ponderous Mallet type locomotives in heavy freight service today.

The entire exhibit is handled by Mr. J. W. Sakers of the B & O's Electrical Department, who did all the original electrical work on the model. He is assisted by Mr. R. Kenneth Henry of the same department, who is responsible for the intricate track layout work.

Colonel Ackerman expressed a high regard for the model's value in the training program, and Major Charles W. Cocke, instructor in the Railway Section of the School's Technical Branch, who conducts the classes, was very much impressed with the student's favorable reaction. He pointed out the clarity with which the model showed such important railroad functions as three rail operation; position-color signal system, yard and terminal operations, locomotive maintenance facilities and centralized train control, in addition to giving a comprehensive picture of a wide variety of modern freight and passenger equipment.

The model created so much interest that groups of high school students from nearby communities have taken advantage of the opportunity to see it in operation, and on Tuesday and Thursday evenings each week the hall was open to the general public from seven until nine o'clock.

CORPS OF MILITARY POLICE

OF THE TROOPS AND FOR THE TROOPS

*by Brigadier General B. M. Bryan**

From a total of three battalions and four separate companies in September, 1941, the Corps of Military Police grew in World War II to a peak wartime strength of some 200,000 enlisted men and 8,000 officers. This article by the Provost Marshal General of the U.S. Army discusses the Corps history, accomplishments and plans for the future.

ON June 19, 1946, the Chief of Staff approved the continuation of the Office of the Provost Marshal General and the Corps of Military Police as a part of the permanent Military Establishment, and announced that at the appropriate time legislation would be submitted to Congress for authority to establish a permanent Corps of Military Police.

What prompted the decision to establish a permanent military police corps? What are the functions of military police, and how do they contribute to the efficient operation of the Army in war and peace? What are the plans of the Corps of Military Police?

These are questions which, I believe, will arise in the minds of all persons interested in the National Defense of our country and in efficient governmental operation, and deserve to be answered.

But before discussing the above questions, let us review briefly the origin and history of provost marshals and military police.

Students of British history have traced the office of Provost Marshal back to the time of the Norman conquest of England in the eleventh century. In those early days the Provost Marshal was appointed personally by the King to maintain the peace, safeguard the royal interests, and handle disciplinary matters. As time went on, he assumed more and more duties of a disciplinary nature within the Army, until by the sixteenth century he had become a permanent member of the military establishment. He was also provided with assistant provost marshals and government-paid troops which by the time of Henry VIII were referred to as Provost Companies. As early as 1611, a provost marshal was serving in the colony of Virginia, under a Martial Code drawn up by the Deputy Governor.

At the beginning of the Revolutionary War, the American Army adopted with little change the form, titles, and administrative procedures of the British Army. A "Provost Martial," accordingly, was appointed "to the army of the United Colonies" by "His Excelency Genl. Washington" in January of 1776.

Two years later, by Congressional resolution, a Pro-

*The Provost Marshal General.

vost Corps was established, "to be mounted on horseback, and armed and accoutred as Light Dragoons." At about the same time, General Washington directed the Marechausie Corps, commanded by a Captain Von Heer, to apprehend "Deserters, Marauders, Drunkards, Rioters and Stragglers" and perform various other military police duties.

For nearly eighty years after the Revolution, few references to military law enforcement personnel have been found. But in September of 1862, a Provost Marshal General of the War Department was appointed in the person of Brigadier General James B. Fry. His primary function was generally similar to that of the present Director of Selective Service, that is, the operation of the draft laws, but his subordinates stationed throughout the country performed many functions of a police nature. They were charged with apprehending deserters, arresting disloyal persons, inquiring into and reporting treasonable practices, seizing stolen government property, and detecting spies. To enable them to discharge their duties efficiently, they were "authorized to call on any available military force within their respective districts, or else to employ the assistance of citizens, constables, sheriffs, or police officers. . . ." In addition, an Invalid Corps, later called the Veteran Reserve Corps, was established in 1862 and charged with performing military police duties and maintaining internal security. The disadvantages of using personnel unfit for field service were recognized, but the shortage of manpower was so severe that no other men could be spared for these functions.

By 1866 the Veteran Reserve Corps had been disbanded, the Office of the Provost Marshal General was abolished, and military police work was again being performed by unit commanders. This situation existed until the entry of the United States into World War I.

As troops of the American Expeditionary Forces began to arrive in France in 1917, the necessity for military police supervision and control immediately became apparent. A Provost Marshal General was appointed to General Pershing's staff in July 1917, as advisor on provost marshal and military police matters. After much study and many recommendations, the establishment of a Military Police Corps for the duration of the emergency was finally approved by the War Department on October 15, 1918, only one month before the signing of the Armistice. During the intervening time, military police duties had been performed by all types of units, hastily activated as the necessity arose, without any special supervision or technical training. Personnel performing these duties were rarely required to have special qualifications, but were selected on a basis of availability and physical fitness. Although measures were taken immediately upon the establishment of the Military Police Corps to remedy the serious defects of organization, unsuitability of personnel, lack of training, and absence of approved doctrine, the early end of hostilities and demobilization of the Army precluded placing many reforms in effect.

In April 1919, Brigadier General Bandholtz, the Provost Marshal General of the AEF, submitted a report to the War Department which enumerated in detail the shortcomings of the Military Police Corps and the Provost Marshal General's Department as it then existed. General Bandholtz's long experience as commander of the Philippine Constabulary made him eminently fitted for evaluating the merits and faults of the organization. The remedy to the existing situation was, in the words of General Bandholtz:

"Maintenance of a specially organized Military Police Corps, in our peace time military establishment, with units that may be actively engaged in Military Police duties, particularly during maneuvers and field training; whose personnel shall be carefully selected and highly trained, having such Esprit de Corps and intelligent appreciation of their functions as will enable the individual Military Police to perform his often delicate duties with assurance and certainty, yet without offense or embarrassment. Then in case of war we will have the nucleus to supply instructors for needed expansion, and trained units to be the first troops to report at any training area."

At the request of General Pershing, General Bandholtz also submitted a proposed Act of Congress creating and organizing a Military Police Corps. The bill was never enacted into law, although a Military Police Branch of the Officers' Reserve Corps was set up under the National Defense Act of 1920.

Several studies were conducted by the War Department during the next 20 years, to plan for the organization of a Military Police Corps in the event of another war. Such military police duties as were required in the peacetime Army, both in the United States and in overseas possessions, were performed by the temporary detail of officers and enlisted men from various arms and services, and by a few organized military police units.

The rapid expansion of the Army during the limited emergency of 1940 and 1941 again made obvious the need for a unified and centrally directed military police organization. Major General Allen W. Gullion, The Judge Advocate General, on July 31, 1941 was given the additional task of establishing the Office of the Provost Marshal General and of creating a Corps of Military Police. The newly appointed Provost Marshal General was confronted with the lack of uniformity of military police organization; training, doctrine and procedures. There were scattered throughout the United States and its overseas possessions many groups of soldiers of all branches of the service performing military police functions. These groups were not uniform in size, dress, or appearance. No standards were prescribed for their training. Some of them were on special duty, some on part-time assignment, and some performing full-time military police duty. There was no coordination of activities, no central directing

authority higher than the Corps Area or overseas Department, no permanent organization, and almost no personnel, either commissioned or enlisted, who had received any special training in military police functions and duties. The War Department had no information on the number of organizations, their size or location, by whom they were officered, how they were being trained, or, except for newspaper reports, what they were doing. In short, the Corps of Military Police had to be created from nothing.

To remedy the existing defects and form a homogeneous body of military police, the present Corps of Military Police was established on September 26, 1941 for the duration of the emergency. As a nucleus for further expansion, there were blanketed into the Corps all officers and men performing military police duties on or off military installations, all tactical MP units, and all Zone of Interior military police organizations. Instructions were sent out to all posts, camps, and stations directing that there be submitted to The Adjutant General the names of all officers performing military police duty, and the location and composition, including grades and ratings, of all enlisted men on such duty.

As rapidly as possible a school for the training of officers and selected enlisted men, a replacement training center, and a unit training center were established. The first class of the Provost Marshal General's School consisted of 211 officers, who were hurriedly trained in traffic control, criminal investigation, handling prisoners of war, military law, and military government operations by some of the leading experts (mostly civilians) in the country. Somewhat later an officer candidate school came into existence. From these humble beginnings, the Provost Marshal General's Training Center at Fort Custer expanded until, at the peak of training, some 14,000 students were being instructed simultaneously in military police work.

Tables of organization and equipment were published, and the testing and standardization of specialized military police equipment was undertaken by the Military Police Board. The preparation of badly needed training literature, films, film strips, and graphic training aids was also begun. Source material was limited to a single pamphlet of some 50 pages published in 1937, and meager reports in War Department historical files and the National Archives of military police activities in World War I. Of necessity training doctrine was developed during the war largely by trial and error.

During the past five years a total of 150 Military Police Battalions and more than 900 other military police units were activated. They included military police organizations for tactical units of the ground and air forces, communications zones, and the Zone of Interior; Escort Guard Companies for handling prisoners of war; Prisoner of War Processing Companies; Post, Camp, or Station Military Police Companies; and Criminal Investigation Detachments. Many military police detachments were also formed from bulk allotments for duties at military installations, patrolling towns and cities, and maintaining order among military personnel on public carriers. From a total of three battalions and four separate companies in September 1941, the Corps of Military Police grew to a peak wartime strength of some 200,000 enlisted men and 8,000 officers.

The primary functions of military police include the preservation of good order and military discipline, the protection of government property, enforcement of military laws and regulations, control of military traffic, custody of prisoners of war, apprehension of absentees, evacuation of refugees, control of stragglers, investigation of crime, prevention of pilferage and looting, and, most important of all, protection of the welfare of millions of fellow-soldiers.

How well the military police accomplished their combat missions has been attested to by private soldiers and top field commanders alike. In Africa, in Europe, and on the islands of the Pacific, MPs hit the beaches with the first waves to set up control points; directed, often under fire, the movement of vitally needed troops and supplies to the front; secured countless command posts and lines of communication against attack; cleaned out snipers in by-passed villages; and, time and again, went into the line to fight beside the Infantry. As American forces moved forward, military police in newly liberated cities and towns held looting to a minimum, broke up black market and currency-exchange rings, and helped soldiers keep out of trouble.

The late Ernie Pyle, who saw their work in more than one overseas theater and knew their qualities both as fighting men and as preservers of order, called the military police "one of the finest groups in the Army." It was Ernie Pyle who said:

"The Military Police haven't got the taint to them that they had in the last war. This time they are a specially picked, highly trained, permanent organization. An MP serves throughout the war as an MP, he is proud of his organization, and he is respected by his fellow-soldiers. . . .

"From the MPs I saw, judging by their demeanor and their conduct, I believe that next to Rangers and Paratroopers they are really the pick of the Army."

Throughout the war, military police in the United States carried on their mission of "Service to the Command" in a way that reflected the caliber of the men and the training they had received. The military policemen who rode the nation's trains and patrolled its streets knew that the test of a good MP was not how many arrests he made, but how few. They knew their job was not to hurt their fellow-soldiers, but to help them; they knew that they were on duty not to make trouble for others, but to prevent trouble before it started, through quick thinking and intelligent, tactful action.

In recognition of their service in safeguarding the welfare of millions of troops in wartime travel—at one

time MPs rode over 60,000 trains per month—the Pullman Company some time ago presented to the Corps of Military Police a plaque expressing its appreciation for the "exemplary record" of MP train patrols. Pullman Company President D. A. Crawford had this to say about these train-riding military policemen:

"They have been a confidant and companion to the traveler, giving aid to the weary, succor to the ill and comfort to the sad of heart. In time of strife, they have tempered military discipline with tact and a keen sense of justice. The standard they have set has been a credit to the Army; it has won the respect of military and civilian travelers alike."

In this age of specialization, the military policeman must be a specialist, a technician, as must a radio operator, an automotive mechanic, an optical instrument repairmen, or an accountant. He must be carefully selected, both as to physical qualifications and temperament, and thoroughly trained in the many phases of modern law enforcement technique. As has long been recognized in civilian police organizations from municipal police departments to the FBI, the Army has found that law enforcement functions can be performed efficiently only by persons who make this field a career. The many details of police techniques, legal procedures, and modern criminology as they apply to the Armed Forces can be learned only by thorough training and experience. By the very nature of his work, the military policeman must function with less supervision than any other soldier, and must daily make decisions normally made by an officer.

Of those incidents which have occurred involving mistreatment or malpractice by military police, the great majority—estimated at some 90%—have been found upon investigation to have been committed by soldiers of other branches who had been placed on temporary military police duty overnight or on week ends, and who were attempting to perform a job without adequate training or experience.

Although some military police functions, such as the handling of prisoners of war, the control of traffic in combat areas, and the control of stragglers, are only exercised in wartime, military police have many important peacetime duties. The preservation of order and good conduct among personnel of the Armed Forces wherever they may be throughout the world, the prevention and investigation of crime, the apprehension of absentees, and the assistance of fellow-soldiers are only some of the contributions of the Corps of Military Police to the efficient administration of the Army. They protect government property on and off military reservations, control civilians entering military reservations and their conduct while on the reservations, operate post guardhouses and stockades, prevent and investigate accidents involving military personnel, protect members of the Armed Forces from violence and excesses, and recover lost, stolen, and abandoned military property. In occupied territory, military police are one of the principal forces available to the Military Governor in maintaining order and carrying out the policies and regulations of the military government.

Provost marshals of posts, camps, and stations maintain close liaison with the local civil police and make the necessary arrangements for the return to military control of military personnel held for petty offenses. They also supervise the activities of military police in civilian communities adjacent to military reservations.

During the past decade, one of the most important duties of the military police has become that of traffic control. Never before in history has the Army been confronted with the problem of traffic control in such magnitude as today. Never before in peacetime have we moved such masses of men over our highways, and never before, in either war or peace, have we had the fast-moving, motorized tactical organizations which exist today. The solution of the traffic control problem has not yet been found, and it is one of the responsibilities of the military police and the Provost Marshal General to find the answer.

Of primary importance is the provision of a trained and experienced cadre of military police officers and men which may be rapidly expanded in time of national emergency. Just as the chief responsibility of the Ground and Air Forces in peacetime is preparation for possible combat, so the Corps of Military Police must train, plan, and prepare for war.

Constant study is being given to improving the organization, training, doctrine, procedures, and techniques of military police. The experiences of provost marshals and military police in overseas theaters and the Zone of Interior are being carefully studied and evaluated for the purpose of developing a sound and comprehensive military police doctrine. The Military Police School is teaching, and constantly seeking to improve, military police techniques. An Extension Course Department at the School is engaged in instructing officers and enlisted men of the reserve components, so that they may be fitted to carry out their duties efficiently should the need arise. Through the ROTC program, prospective military police officers are instructed in the techniques of military law enforcement work.

The Corps of Military Police is one of the youngest branches of the Army. It is proud—and believes it has a right to be proud—of its record of accomplishment and service, in combat and at home, written on the bloody beachheads of every major invasion and on shell-blasted roads jammed with traffic moving toward every front, and equally in our soldier-packed cities and on the country's war-crowded railroads, during the past five years. However, it realizes that it still has many unsolved problems, and its growing pains will continue for many years to come. But it is facing its problems squarely and devoting its energies to solving them as rapidly as possible. A permanent organization is essential to providing that continuity necessary for steady progress.

MEDICAL ADMINISTRATIVE CORPS

History And Mission Of The Medical Administrative Corps

*by Major Bernard Aabel**

THE mission of the Medical Department in the treatment of the sick and injured and the preservation of the health of the Army entails the performance of numerous duties which do not require the application of professional technical training in medicine, dentistry or veterinary medicine. These duties, such as certain phases of pharmacy, medical supply, personnel management, laboratory investigation, psychiatric social work, clinical psychology, command and training activities, sanitary engineering, optometry, mess management, physical and educational reconditioning, occupational therapy, and others, can be performed adequately by scientific specialists and skilled administrative personnel, thus relieving physicians of administrative details and economizing in the utilization of these skills.

A plan was envisioned, fostered and implemented by The Surgeon General, Major General Norman T. Kirk, and Major General James C. Magee, former Surgeon General, whereby an enormous expansion of this type of personnel was developed, using the Medical Administrative Corps as a medium.

History

Reflecting the dissatisfaction with the waste that was incurred during World War I, when doctors were utilized, in addition to their other duties, as accountants and mess officers, the Regular Army Medical Administrative Corps, with a strength of 145, was first established by the Act of June 4, 1920 (49 Stat. 1902) that amended the National Defense Act of June 3, 1916, for the purpose of providing a corps of officers whose primary function was performing medical administrative work.

During World War I, the Sanitary Corps was provided by War Department General Order 80, dated June 30, 1917. Administered by the Sanitary Corps of that day were the officers who in 1920 formed the initial group of officers appointed to the Medical Administrative Corps.

The Act of 1920 provided that the second lieutenants of the Medical Administrative Corps would be appointed from enlisted men who had served at least two years in the Medical Department. The allowance was one officer for each two thousand men. These officers were eligible for promotion after five years to the grade of first lieutenant and after ten years to the grade of captain. Not more than one-half of the total number could be commissioned in the grades of first lieutenant and captain combined, and captain was the highest grade obtainable.

The year 1921 saw the strength of the Regular Army reduced, and in conformance therewith there was a reduction of Medical Administrative Corps officers to 72. This limited corps of 72 existed for the next two decades.

The Act of June 20, 1936 (49 Stat. 1902) provided that thereafter appointments in the Medical Administrative Corps would be made in the grade of second lieutenant from pharmacists between the ages of 21 and 32 who were graduates of recognized schools or colleges of pharmacy requiring four years of instruction and a B.S. Degree in Pharmacy upon graduation.

In January 1942 it was recommended and in July 1942 it was approved that Section 10 of the National Defense Act be modified to allow MAC officers to be promoted through the grade of colonel.

By the Act of June 12, 1943 (57 Stat. 430), a Pharmacy Corps with an authorized strength of 72 officers was established in the Regular Army, and although the Medical Administrative Corps was not abolished, a provision was made that officers holding commissions in the MAC would be transferred to the Pharmacy Corps, the 58 officers in the MAC being thus transferred. These 58 officers would be carried over and above the ceiling of 72 officers until eliminated through attrition

*Surgeon General's Office.

by death, retirement or resignation. A tremendous reservoir of Reserve officers of the MAC exists, and even today some two thousand Reserve and AUS officers are on duty.

During the 1930's the MAC was the smallest branch of the Medical Department, and from a humble start of 66 MAC officers on duty in 1940 (including four Reserve officers at the time of the passage of the Selective Service Act), a peak was reached in 1945 of 19,439 officers. At that time it was the third largest of the eight corps in the Medical Department, being exceeded only by the Medical Corps and the Army Nurse Corps. Army-wide there were two MAC officers on duty for approximately every five Medical Corps officers, or almost three MAC officers on duty for every thousand troop strength.

Procurement

The mushroom growth of this very limited Medical Administrative Corps was implemented and procured in the following manner:

1. Civilians possessing special skills were offered direct appointments as MAC officers. These included medical supply specialists procured from industry, lay hospital and office administrators, medical photographers, hospital architects, operators of large restaurants and chain food establishments, physical reconditioning experts, acoustic and rehabilitation officers for the blind and deaf, and clinical psychologists. This procurement was authorized in June 1942 and continued until October 1943.

2. By the direct appointment of noncommissioned and warrant officers with eight or more years service to commissioned ranks. The direct appointment from enlisted men and warrant officers had precedence over the appointment of officers from civilian life.

3. By calling to active duty all officers holding Reserve commissions. (There were 1240 in the MAC Reserve Corps.)

4. By the establishment of two Officer Candidate Schools. In July 1941 100 candidates inaugurated the first Officer Candidate School at Carlisle Barracks, Pennsylvania, and by September of the same year the capacity had been increased to 250 candidates. The second OCS was established at Camp Barkley, Texas in May 1942 and at that time the combined size of the two schools was increased to 1,500 candidates. By October 1942 the capacity was increased to 2,250 and further increased in December 1942 to 3,750. The rapid increase was due to the urgent need of personnel to replace Medical Corps officers in non-professional assignments. Tables of organization were rewritten and published in April 1942 to provide for greater utilization of this expanded corps as a substitution for Medical Corps officers. Procurement was curtailed in early 1943 when one of the two OCS was closed, and by the end of 1943, enrollment had been cut to 98 candidates. However, in May 1944, the school strength was again expanded to 500 candidates and upon the completion of OCS, these officers were further trained in special courses as assistant battalion surgeons, this program continuing until March 1945. Seventeen thousand officers were graduated from OCS.

5. By direct overseas battlefield appointments of enlisted men and warrant officers of the Medical Department.

6. Married men in civilian life who voluntarily enlisted as MAC officer candidates. If selected after three months basic training as an enlisted man, a candidate was commissioned as a second lieutenant after an intensive course of instruction. If the candidate were rejected, he could return to civilian life.

During World War II, MAC officers were utilized in a multitude of diverse assignments with Ground, Service and Air Forces, as well as with the Transportation Corps in ports of embarkation, on hospital trains, and on transport and hospital ships.

1. *Medical Supply*

One of the broader aspects of the assignments filled by MAC officers was represented by the Medical Supply Service of the Army, Red Cross, International Aid and other agencies. The elevation of the position of Director of Supply Service from the rank of colonel to brigadier general was indicative of the emphasis being placed on the use of MAC officers for this important activity.

Medical Supply is truly big business. During the war the approximate tonnage that constituted one month's transactions in moving medical supplies from manufacturer to depot to ultimate user would fill a freight train 50 miles in length. Two to three thousand MAC officers were connected with the procurement, inspection, shipment, distribution, storage, standardization, negotiation, price analysis, award of contracts, machine records, fiscal accounting, demobilization planning and disposal of (a) drugs, chemicals, and biologicals (b) surgical, dental, and veterinary instruments (c) hospital and laboratory equipment.

A 32 per cent reduction of personnel and a 25 per cent reduction in space requirements was effected in 1944 by using modern ideas and methods of mass production and work measurement; this at a time when stock pile and work load increased twenty per cent. A medical supply officer in an average hospital was responsible for Medical Department property averaging a quarter of a million dollars.

Various strategically located medical depots were dispersed in the Zone of the Interior. A typical medical depot was the Kansas City Medical Depot, which had two major missions: (a) the storage and issue of biologicals (b) the assembly, storage and issue of field chests, kits, instruments, sets of equipment for surgical trucks, dental operating trucks and dental laboratory trucks, not to mention equipment for air base group aid stations, field and evacuation hospitals, and many other

similar assemblies, which varied in weight from a few ounces up to large major assemblies comprising 140 parts, weighing 13,000 pounds, and occupying space equal to one-third of a railroad car.

The old table method of production was replaced by production lines of roller conveyors and power belts. Costly delays were limited by production planning, the use of motion study, time study, process charts, job analysis, and all the other modern tools of production. Ideas and methods were adopted from the airplane, airplane engine, automobile, and drug manufacturing industries.

As an example of the utilization of MAC officers in replacing doctors, medical supply is a splendid example. For instance, in late 1944 during the height of hostilities, only eleven Medical Corps and two Veterinary Corps officers were engaged in medical supply activities in the Zone of Interior. A specially phased program of instruction in medical supply trained hundreds of MAC officers by sending them the first month to Camp Lee, Virginia, the second month to the St. Louis Medical Depot, and the third month in "on the job" training in the various medical depots.

2. *Hospital Administration*

As an indication of the importance of hospital administration, it is significant that various civilian universities have instituted courses in recent years giving degrees in hospital administration and training individuals for these positions. A top administrator and his administrative assistants and department heads in a general, station, convalescent, regional, field, or evacuation hospital can formulate and advise the commanding officer of constructive plans for the progressive development of the hospital.

3. *Ground Force Units*

A new and novel course of instruction known as an "Assistant Battalion Surgeon's School" was established early in 1944 for the purpose of reducing the tables of organization of Medical Corps officers in battalion aid stations of Infantry, Airborne and Armored Divisions from two to one officers, and to conserve and place physicians in jobs of a more specialized professional nature. This substitution of specially trained MAC officers for these front-line jobs was authorized by War Department Circular 99 of 1944. This training was given to over 2000 MAC officers, and resulted in the depletion of a large reserve pool of MAC officers which had been built up in the latter part of 1943. In this manner the battalion surgeon was relieved from routine paper work, and provided with an assistant trained in a background of first aid emergency medical treatment and minor surgery.

Graduates of the Assistant Battalion Surgeon course also served as transport surgeons for periods not exceeding three thousand transport days (that is, 300 troops in 10 days) on smaller boats where it was uneconomical to use a Medical Corps officer.

The treatment of shock, administration of blood and plasma, early administration of morphine, the splinting of broken limbs, the arresting of hemorrhage, and above all speedy evacuation of the wounded by deft and skillful handling by the assistant battalion surgeon and his well trained enlisted men made him a highly respected member of the incomparable medical team which made it possible for the American G.I. to be the best cared for soldier in the world.

Positions of the S-1, S-2, S-3 and S-4, as well as all other staff assignments in the headquarters of medical battalions and medical groups under divisions, corps and armies were manned by MAC officers. Ambulance companies were commanded and staffed entirely by them. The infantry divisions had an average of forty-two Medical Corps officers and thirty-seven MAC officers.

In the chain of evacuation from the battalion aid stations through the medical collecting companies of the combat command of the armored division and the regiment of the infantry division and the clearing companies of the division were MAC officers who were an integral part of those units. In the field and evacuation hospitals under Army Ground Forces MAC officers performed duties previously described under hospital administration.

Exclusive of the commanding officer and his executive officer, the MAC officer performed all other duties in a medical group headquarters which had under it field hospitals, medical battalions and separate collecting, clearing and ambulance companies. Some medical groups had as many as 2,500 assigned medical personnel and handled as many as 250,000 patients during their war operations.

4. *Command and Training*

In conforming with the War Department policy of conserving Medical Corps officers, teaching positions in Medical Department schools were assigned to MAC officers whenever possible. School secretaries, training aid officers, and instructors of such important subjects as army administration, tactics, intelligence, and physical training were the responsibility of the MAC officer.

In the Medical Replacement Training Centers established in 1941 and early 1942 at Camp Lee, Virginia (transferred in June 1942 to Camp Pickett, Virginia), Camp Grant, Illinois, Camp Barkley, Texas and Camp Joseph T. Robinson, Arkansas, there were approximately five MAC officers to every MC officer. The average MRTC had approximately 350 MAC officers. It was here that trainees fresh from civilian life were given basic military and Medical Department field and technical training over periods ranging from eight to 17 weeks.

Beginning in April 1942 Officer Candidate Preparatory Schools of four weeks duration were conducted at these centers to provide an opportunity for screening

potential students for enrollment in MAC Officer Candidate Schools.

Over a period of three and one-half years 22,500 enlisted men were selected for further advanced training at Medical Department Enlisted Training Schools. These men specialized in one subject only and upon completion of the course became either medical, surgical, laboratory, dental, X-ray, pharmacy, sanitary or veterinary technicians.

Many a Medical Department officer was given a direct commission without ever having attended an Officer Candidate School. Therefore, a school of orientation in military subjects was given to him by the MAC officer in The Medical Field Service School. Included in the curriculum were such basic military subjects as:

> Military courtesy, Map reading, Marches and bivouacs, Tent pitching, Nomenclature and care of equipment, Hasty entrenchment and shelter, Ambulance loading and unloading, Chemical warfare, Organization of the Army, Mass athletics, Close order drill, Safeguarding military information, Field sanitation, and Employment of medical field units.

5. *Army Air Forces*

Prior to 1942 it was indeed a fortunate station in the Army Air Forces that had MAC officers assigned to it. The policy of the AAF was to assign MAC officers to their hospitals as they became available in the amounts of four to the smaller hospitals, and up to 20 in the larger ones. Air evacuation played an important part in the treatment of patients and many MAC officers were closely associated with this program.

Approximately 20 per cent of all sick and wounded military patients were returned from overseas to the Zone of Interior by air. This rapid transportation of wounded from the front to the United States measurably reduced the numbers of medical installations required overseas with an attendant reduction of medical specialists. The rapid flow of great numbers of airborne patients necessitated the establishing of holding stations en route and debarkation hospitals at continental United States terminal points. Administrative regulation of this flow was almost exclusively a function performed by the Medical Administrative Corps, utilizing Medical Corps officers as medical consultants.

The Surgeon General's convalescent program for patients is typified by the program developed by the AAF for the more rapid and complete recovery of patients. Physical exercises and educational activity were started while the patient was still in bed and broadened as he recovered. This resulted in savings of thousands of man-hours and materially lightened the heavy burden under which the Army Air Forces hospital staffs operated. Bed patients received two to three hours of physical education training per day while ambulatory patients received from three to six hours daily. Two million five hundred thousand man-hours a month were taught in physical and educational reconditioning in the AAF alone, which shortened the period of hospitalization of soldier patients and reduced the chances of readmission.

Study of geography, geopolitics, foreign languages, tropical diseases, mathematics and skilled trades such as radio, airplane and engine mechanics, wood and metal work and allied subjects were taught. Close order drill, games and other outdoor activities, including victory gardens, also had a place in the routine.

6. *Higher Headquarters*

The Medical Administrative Corps officer was also the administrative assistant to the surgeons of such higher headquarters as corps, army, theater and department. In The Surgeon General's Office of the War Department, in addition to general administrative matters, finance, statistics, hospital construction, personnel, supply, training and other activities were participated in by MAC officers.

Typical examples of highly specialized MAC officers were the clinical psychologists and psychiatric social workers who aided the psychiatrists in rejecting 1,850,000 draftees for mental disorders (twelve per cent of all examined). They also assisted the psychiatrists in treatting one million psychiatric cases admitted to Army hospitals during the war.

Today there are but two to three thousand MAC officers left on duty, most of the others having returned to normal civilian occupations. However, many, because of their specialized Army training, were experienced enough to step right into corresponding jobs in the Veterans Administration Medical Facilities which have expanded so tremendously since V-J Day and will continue to serve the veterans for scores of years to come.

By the implementation of this enormous program of endeavor to relieve the doctor of as many non-professional duties as possible, thousands of already overburdened physicians were retained in their respective communities to maintain the high standards of medical care that existed in peacetime.

As an example of the economy measures utilized in the conservation of professional medical skills, it is interesting to note that during World War I when there was no Medical Administrative Corps, seven and one-half doctors were used for every thousand troops in the field, whereas in World War II five and one-half doctors were utilized per thousand troops. This saving can be attributed to the activities and development of the MAC at a time when operations were on a world-wide basis from tropics to arctic, during all types of weather and climate, under the most difficult field conditions, among primitive as well as highly developed civilizations. Every conceivable type of battle wound was encountered. A record number of troops were cared for. Nine million three hundred and seventy-three soldiers were treated in Army hospitals from January 1942 to December 1945.

ARMY AIR FORCES

Air Force Engineering Practices In The Postwar Army

*by Major Ralph Pastor**

WHEN on May 14, 1946, the now historic circular 138 gave the Army Air Forces its long sought semi-autonomy, new responsibilities and duties fell to its lot. Of these new tasks, the job of caring for its own bases and installations was by far the most demanding; it was to be handled by the engineers within the Air Forces, the Air Installations Division.

Thus inheriting this phase of the work of the Service Commands, the Air Installations Division began a period of expansion. This occurrence, when a general all-around reduction was occurring in the size and strength of the Armed Services, was essentially an aftermath of the late conflict.

The best understanding of the work of the Air Installations Division can be obtained from an examination of the growth of the Army Air Forces, and the problems engendered by this mushrooming.

Early Days and Expansion

The dark and dour New Year that greeted 1942, when headlines screamed reverses and setbacks, forecast a grim future unless Herculean efforts by the Armed Forces were coupled with increased industrial output to build for the United States an unprecedented war machine.

As a part of this picture, the growth of the Army Air Forces was a related phenomenon. Elsewhere have been recounted the airfields which were constructed on Pacific isles within the echoes of snipers' bullets; how the Aviation Engineers spearheaded the AAF's progress from Hawaii and Australia toward the Japanese Empire; the transformation of the British Isles into one vast aircraft carrier; the work in Africa, and then as the tides of war changed, on the European continent.

These fields that the aviation Engineers built were not only for bombers and fighters, but also for the needs of a unique organization which had made strategic air transport a byword of logistical planners: the Air Transport Command. Established in May, 1941, as the Air Corps Ferrying Command, it had grown to span the globe. For its North Atlantic route, it used bases in Labrador, Greenland and Iceland. South Atlantic flights went from Florida to the bulge of Brazil and thence across the Atlantic either non-stop to Dakar or, by way of Ascension Island, to Roberts Field or Accra in Africa. These fields were the points of entry into Africa for this traffic which from Liberia, for example, continued northerly to North Africa or Europe.

Westward, Air Transport Command flew from Hamilton and March Fields in California to Hawaii, to Christmas or Canton Islands, New Caledonia, and Australia. Later, as the Jap retreated to his homeland, a direct route was followed to the land of Nippon via Johnston, Kwajalein, Guam, Saipan and the Philippines.

Global wise, Air Transport Command was the air supplier to the doughboy and the aircrewman. To Alaska, India, China: to every spot where the American soldier fought, ATC brought men and matériel of war, and flying its air evacuation mercy missions, carried the wounded to quick and prompt care.

Many of the bases that ATC used for its world girdling activities were taken over close on the heels of the retreating enemy. Hardly had Rommel been driven out of Africa, when ATC planes were at what later became John H. Payne Field in Cairo, Egypt. When fields such as this reverted to air transport activities, it was the engineers who made the alterations incidental to the changed needs. Terminals were enlarged, messing and billeting facilities expanded, and, so far as feasible, it was attempted to approach commercial airline standards. Of course, some bases served dually for both tactical and transport work.

Other ATC bases were constructed by the engineers specifically for its own activities. In Labrador, Greenland and Iceland; in Brazil, and at Ascension Island; in Hawaii and in Australia, ATC laid down its requirements.

As a result of this intensive airfield utilization, ATC's scheduled routes at its peak extended more than 150,000 miles. Its aircraft numbered 3,705. By the close of hostilities it had transported over 4,000,000 persons more than eight and one-half billion passenger miles.

Maintenance Responsibility

Today, at its installations within the Continental limits of the United States, the Air Installations Division of Air Transport Command has the task of maintaining these wartime-expanded facilities which, while by no means as extensive as at the height of hostilities, still far exceed our prewar military establishment. Although in this country some ATC Air Installations responsibilities are similar to those shared by the other AAF

*Air Installations Division, The Air Transport Command.

Commands, ATC with its greater wealth of global-wise air base operating experience, was selected to tend also to the housekeeping of the War Department's many so-called offshore installations. Especially in this interim period, when the national defense requirements of the United States have not as yet been definitely evolved, it is important that we do not neglect these expensive and, in many cases, irreplaceable facilities at our out-of-the-country installations.

"Spartan" Level Maintained

Practicing the "Spartan System" of maintenance, a policy formulated by the War Department as that most compatible with economy and proper upkeep, ATC's Air Installations Division will have an even greater job when our occupation of Germany and Japan ends. Then it may receive the bases and posts and camps which are now the responsibilities of the Theater Commanders.

Carefully set forth in a 14-page regulation issued in September 1946 is the exact type of maintenance that Air Installations Division is to perform at the War Department's various class three installations. (Class three installations include air bases, airfields, arsenals, camps, posts, stations, depots, forts, and hospitals, as well as proving grounds and other AAF assigned establishments. Specifically omitted are aircraft assembly plants, modification centers and other AAF industrial installations not under AAF's jurisdiction.)

Constantly ravaged by wind, rain and the elements, these installations even if entirely unused need continual attention. Additionally, a certain amount of new work must be accomplished for oftentimes damage by the elements precludes any repairs. Then, too, the occasion may arise when certain conversion of facilities is desired, either temporarily or on a permanent basis.

The day by day activities; water supply, with its attendant pumping and purification systems; various additions or extensions to the supply systems; gas, electricity, steam and fuel; all are the concern of Air Installations Division.

More mundane are its heating responsibilities, where close supervision is maintained over all the heating plants of installations; then, too, AID tends to the refrigeration work, from the manufacturing of ice to the keeping up of the lowly water cooler. AID's concern with sewage systems, its attention to the fire prevention systems, and its operation of effective insect and vermin control programs are still more of its routine functions.

In winter, AID sees to the removal of snow from runways, and other vital places of installations; summer, it looks after swimming pools. Bridges, fences, surfaced roads and of course the all important runways and hardstands, are also cared for by Air Installations Division.

On the drill field or the parade ground the seeding and drainage, as well as various anti-erosion details, are another responsibility of AID.

At those installations where men undergo active training, Air Installations Division looks after the various training aids used; target ranges, bayonet courses, obstacle courses, shooting galleries and the host of details that are connected with such activities are all its concern.

AID also has an elaborate cost accounting system by which the exact cost of every repair or addition made to a post, camp or station is immediately ascertainable. A strict budgeting to justify the expenditure of appropriated funds by AID is a task no less important than the accounting for all the matériel and supplies which go into this gigantic repairs and utilities program.

Economy minded Air Installations Division is well aware that preventive maintenance is often difficult to justify except in long-range planning. Consequently it stresses the surplus value of installations; AID preventive maintenance is a prime means of staving off the depreciation which can so invidiously eat away real property values.

At the Greenland Base Command, in addition to the main post, ATC's Air Installations Division watches over the structures and components of many satellites comprising, in the main, weather and radio stations, with an average of five men staffing each installation. At the Newfoundland Base Command and at the Bermuda Base Command numerous subsidiaries have AID's maintenance service. With the exception of AACS personnel, Lagens, in the Azores, is another R&U responsibility of ATC Air Installations Division. Airfields, and posts at the Iceland Base Command owe their upkeep to ATC's AID, while at Ascension Island and the Bahamas, installations are also maintained by this organization.

AID Efficiency

Under the Assistant Chief of Staff for Supply and Services, Air Installations Division in Air Transport Command shares parity with the general and air supply division. With four branches: utilization, assignment and real estate; construction, maintenance and utilities; management and service; and fire prevention; general supervision is exercised over and advice rendered to the field.

The utilization, assignment and real estate branch, as its name indicates, supervises all transactions involving the real property of installations under ATC's jurisdiction. Here are made all preliminary arrangements with other commands for their joint use with ATC of certain installations, as well as the initiating and coordinating of landing rights at ATC bases by commercial carriers, and other governmental agencies. Its day by day work makes it one of the best informed AID branches on the status of ATC installations within the continental limits of the United States, and when the occasion arises, it is thus able to advise AAF or other authorized agencies on their status. It functions as

well in an advisory capacity to the Chief of Engineers on real property of ATC. Through this branch, too, pass all reports to the Chief of Engineers on the real property of overseas installations.

The structures sections of this branch deals mainly with the supervision of the construction of new buildings and similar projects. This section prepares all preliminary budget estimates for construction of new buildings and structures, and actively collaborates with Headquarters, Army Air Forces, in the maintenance, alteration, extension and repair of their buildings. Personnel of this section make periodic visits to installations, checking the soundness of the various repairs and utilities projects. Here in this section are formulated architectural standards for the permanent type building peculiar to ATC's operation requirements; paralleling this work are the continuous studies undertaken to secure data on the economical and efficient conversion of existing ATC building for other essential purposes.

Analyzing the various requirements for proper operation of airfield runways, which involves such diverse needs as clearance projects to provide the proper 40 to one landing glide of aircraft, as well as proper runway drainage and erosion prevention, the grounds section of this branch passes upon all requests from various ATC agencies for maintenance, alterations, additions, or extensions to ground facilities. Definite policies on the maintenance approach to grounds work, including budget estimates and field survey work, are a further function of this branch.

Two units, the runways and roads unit and the drainage unit, subordinate to the grounds section, supervise maintenance in their particular specialties, the former concerned with all paved properties, while the latter attends to the proper drainage of installations.

Maintained by the installations data section is a central agency which handles records concerning all physical installations and their use. These records cover airfields, landing strips and radio ranges, as well as grounds and buildings with which the Air Transport Command is concerned both in this country and abroad.

In the utilities section of this branch, five functional units supervise the all embraeive nature of this section's work, which is primarily concerned, as its name indicates, with utilities.

The first of these subsections, the electrical unit, maintains at installations (where AID functions under the Air Transport Command) the upkeep of generating plants, substations, power transmission systems, and the allied equipment fed by these electrical distributing means; street and airfield lighting, radio rangers, radio beacons, radar storm warning systems, as well as radio transmission and receiving systems. It formulates, too, broad programs designed to attain the maximum in efficiency and economy at these various stations, and is the advisor to the Air Installations Division officer on matters pertaining to its specialty.

The heating, ventilations and refrigeration unit, also under this branch, is the supervising authority on the operation, maintenance, rehabilitation and general upkeep of these services which are so essential to the comfort and health of personnel at installations; the heating and ventilating systems. Additionally, comprehensive programs aiming at the most efficient and economical operation of such systems are constantly being formulated by this unit. Supervised, too, are the compilation of engineering reports and the subsequent preparation of graphic analyses.

Still another unit of this section is concerned with water supply, and the disposal of waste, while the insect and rodent control unit supervises the work in the field for the control of those pests which, unchecked, can cause so much property damage. The last unit of the utilities section, but not the least in importance, the shops and maintenance service unit, is the supervising authority for all the equipment used in the kitchens of installations; this unit functions to keep them in operating condition.

The management and services branch, which directs four sections, is also responsible for the training of command personnel in the technical aspects of repairs and utilities operations.

The first of these sections, the cost and property accounting section, directs field inspections and serves as consultant and advisor to other administrative activities on cost and property accounting problems.

In the policy and procedures section all war department and AAF publications pertaining to construction, repairs and utilities activities are reviewed for interpretation and dissemination to all sections of the Air Installations Divisions, sub-Commands, and ATC Installations. Here, too, are prepared studies devising new policies and procedures, as circumstances may require.

Prepared by the budget and statistics section is the financial program which Air Installations must follow in its maintenance, repair and utilities operations. Full coordination is also entered into with other activities on matters pertaining to budgetary functions, as well as the preparation of charts, graphs and tables to illustrate the results of statistical studies which it has undertaken.

The requirements and equipment section, fourth operating section of the management and services branch, carefully watches the matériel needs of AID, planning, initiating and presenting to higher authority tables of allowances, organization, and equipment for units or installations, under ATC's jurisdiction.

The fire prevention branch exercises supervision over the development and application of War Department and Air Transport Command fire prevention and protection, standards to real property, matériel, processes and personnel at ATC installations.

Attacking the problem from the standpoint of engineering, management, fire prevention and real estate controls, Air Installations Division functions to assist the individual installations, the total Air Transport Command mission, and the American taxpayer.

AGF Intelligence Training

*by Captain Donald B. Crowl**

The first school of its kind ever established within Army Ground Forces, the reason for the Intelligence Instruction Division at The Ground General School stemmed from the combat experiences of World War II, which revealed that few officers and men were trained to assume the responsibilities of intelligence activities.

WHEN The Ground General School Center was established at Fort Riley, Kansas, on November 1, 1946, several functions already in existence at that post were absorbed by the Army Ground Forces newest and most comprehensive school. These functions included certain courses formerly taught by The Cavalry School and the intelligence courses for officers and enlisted men offered at the Intelligence School. The retained courses fill an important niche in The Ground General School, which has, as a part of its mission, the "rounding-out" education of newly commissioned officers and the training of officer candidates in the Army Officers Candidate Course.

Briefly stated, it was felt that newly commissioned officers should receive a general military education and background of all branches within Army Ground Forces prior to attendance at branch material schools or branch assignments. The Army Officer Candidate Course will qualify or reject all of the ground force officer candidates for the entire Army. The course will be branch immaterial; the candidates who successfully complete the course will receive basic branch training at the respective branch schools.

Intelligence Instruction Division

With activation of The Ground General School, the Intelligence School became the Intelligence Instruction Division. The first school of its kind ever established within Army Ground Forces, the reason for the Intelligence Instruction Division stemmed from the combat experiences of World War II, which revealed that few officers or men were trained to assume the responsibilities of intelligence activities necessary to waging modern war successfully.

During the war, the War Department had established the Military Intelligence Training Center at Camp Ritchie, Maryland, where a large number of technical experts and specialists were trained. After cessation of hostilities this center was closed. Realizing, however, that the Army must not be caught short again in any bracket of the military specialties that go to make up an effective fighting force, the Commanding General of Army Ground Forces, in October, 1945, directed that an intelligenee school be activated at Fort Benning, Georgia. Accordingly, a handful of instructors who had been at MITC moved to Fort Benning and began preparation for such a school. In November the location of the school was changed to Fort Riley, Kansas, and there was established as the Intelligence School under the Commandant, The Cavalry School. On November 1, 1946, the Intelligence School became the Intelligence Instruction Division, one of the two academic divisions of The Ground General School.

Mission

The broad mission of the Intelligence Instruction Division is to train officers for duty as G-2's and S-2's of divisions and smaller units and to train enlisted men in the special techniques of aerial photo interpretation, order of battle and interrogation of prisoners of war. To carry out this mission, the Intelligence Instruction Division is divided into three departments, namely, the Department of General Intelligence, the Department of Aerial Reconnaissance, and the Department of Order of Battle and Interrogation.

In addition to the foregoing, the Intelligence Instruction Division will teach all courses of intelligence in the Army Officers Candidate Course and Basic Course, as well as aerial photo interpretation and map reading.

Department of General Intelligence. The Department of General Intelligence teaches the major portion of the class hours allotted to the Officers Intelligence Course. In this department are found combat experienced officers representing intelligence backgrounds of most of the ground arms. Lessons prepared by any one instructor are the subject of scrutiny by men with knowledge of the lesson's application to any type of

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field unit. One major contribution of this pooling of skills has been an increasing uniformity in procedures and techniques which are being taught to students. There has been increasing emphasis, growing from the discussions developed in this group, of the common purposes and generally similar intelligence practices of all arms and services.

Intelligence Section. The section which works with the widest variety of material is the Intelligence Section of the Department of General Intelligence. The section is divided into three instructor committees, described by the major branch of intelligence activities in which they specialize. The committees are Infantry-Armored-Airborne Intelligence Committee, Artillery Intelligence Committee, and Technical Intelligence Committee.

Infantry-Armored-Airborne Intelligence Committee. This committee teaches subjects of general intelligence common to these branches. Conferences and exercises are based on intelligence planning for infantry, armored, and airborne units from battalion to division levels. A great number of hours is allotted to the study of, and practical work in, the organization, function, and operation of G-2 and S-2 staff sections. Intelligence procedures dealing with summaries, estimates, reports, and annexes are covered thoroughly.

Artillery Intelligence Committee. This committee, which is composed of artillery officers, teaches subjects which include duties of the field artillery S-2 from battalion to corps artillery levels. Artillery observation and counter-mortar methods and equipment are demonstrated by firing exercises in which techniques of counter-mortar and use of radar are demonstrated. Advanced artillery intelligence is taught to those student officers whose branch is Artillery or Coast Artillery, which includes detailed practical exercises in the artillery intelligence team and counter-battery intelligence team.

Technical Intelligence Committee. The Technical Intelligence Committee is concerned with teaching various types of intelligence peculiar to the Corps of Engineers, Ordnance, Medical Corps and Signal Corps.

Counterintelligence Section. The broad purpose of this section is to enumerate and clarify the various measures that may be adopted to destroy the effectiveness of the enemy intelligence system and the prevention of sabotage and subversion. This section is composed of three committees, namely Covert Intelligence Committee, Security Committee and Psychological Warfare Committee.

The Covert and Security Committees deal with negative and positive measures of intelligence, and instruction covers all measures available to the commander up to and including Army level. A discussion of all special intelligence agencies, such as Office of Strategic Services, Counter Intelligence Corps, Informants, Signal Intelligence Service, Cryptography, Radio Intelligence Service, including signal information and monitoring (SIAM), and all other counterintelligence agencies are covered. During the course students have practical instruction in all phases of counterintelligence, including organization and functions of all counterintelligence agencies, preparation of counterintelligence plans, security planning before and during operations, co-ordination, co-operation and liaison necessary with all general and special staff sections, and security checks and surveys in safeguarding military information.

The Psychological Warfare Committee informs the students of the capabilities and limitations of psychological warfare with special considerations to tactical application. The students are taught that success depends to a great extent on close co-operation between G-2, S-2, and the tactical psychological warfare unit. Historical examples are used throughout the course to illustrate the role of the intelligence officer. The importance of domestic intelligence is recognized and is receiving much emphasis in the curriculum.

Department of Aerial Reconnaissance. The broad mission of this department is to train students of all ground arms in basic map reading, techniques of photo interpretation and the use of specialized equipment, and the function of G-2 (air). The department reviews all new developments and trends relative to this field.

To facilitate instruction, the department is divided into two sections, namely the Photo Interpretation Section and Air Intelligence Section.

Photo Interpretation Section. In order to become proficient in aerial photo interpretation, students are first thoroughly trained in basic map reading with particular reference to the characteristics, similarities and differences of domestic and foreign military maps. Field problems in logical contouring, sketching and cross-country movement follow classroom instruction. The organization of the Army is studied, with particular emphasis on the relationship of personnel trained in photo interpretation to the intelligence staff sections.

The student receives instruction, which is mostly practical work, in recognizing, identifying, and classifying commonplace objects of a military nature, and in distinguishing between air views of natural and artificial cover and concealment. From here the student progresses to exercises in identifying vegetation, soil types, and land forms for preparation of "going" and trafficability reports and in determining the suitability of terrain for military operations.

The students design and construct terrain models for use in military operations. The materials used are obtained as far as possible from field sources. The resulting models are used in instruction of subsequent classes. It should be recognized that graduates are not full-fledged or experienced photo interpreters, but that they are versed in photo interpretation techniques and in use of specialized equipment, such as stereoscopes, height finders, and sketch masters. When the student returns to his parent organization, application of this

knowledge to tactical situations which will arise during training will develop these skills until the man is an experienced photo interpreter.

Air Intelligence Section. High performance aircraft became an important tool of ground intelligence officers in World War II. The Air Intelligence Section instructs students in the techniques of air reconnaissance, both visual and photographic, developing student skill in combining the efforts of air force personnel with the work of ground intelligence agencies. Instruction in all intelligence subjects stresses the facilities of the air arms which are available to other fighting units.

Department of Order of Battle and Interrogators of Prisoners of War. The Department of Order of Battle and Interrogators of Prisoners of War trains enlisted men in the techniques of order of battle and interrogation of prisoners of war. The exploitation of enemy documents and of information gleaned from the enemy by interrogators is stressed. A major activity of the department has been development of a mythical enemy for use in training. Manuals on order of battle, equipment, etc., of this mythical foe are being prepared for use in intelligence instruction in AGF schools and for development of a maneuver enemy with organization and characteristics different from our own. The goal is to inject realism into training and to do away with the obsolete order of battle books based on the now nonexistent Japanese and German armies.

The department is divided into an Order of Battle Section and an Interrogation of Prisoners of War Section.

Order of Battle Section. Order of battle is a system for bringing together the minute fragments of information to form a complete picture of the size, location, arms, equipment, movement, supply, and such intangible factors as the morale and physical condition of the enemy. Captured enemy documents and prisoners of war are principal sources of order of battle information. With proper evaluation and collation of captured information by highly trained order of battle specialists, the intelligence officer can more readily estimate the enemy capabilities which will affect the commander's plans and decisions.

The student is acquainted with the duties and function of order of battle personnel at tactical and strategic levels. He then is grounded in the military "language," that is, the symbols, abbreviations, and logistics of our late enemies, together with a study of the characteristics of the general staffs, types of divisions, uniforms, insignia, and weapons. The geography of the principal theaters of operations and the major campaigns of the war are studied, and problems are solved by the student based on actual campaigns. A great deal of time is devoted to the evaluation and interpretation of enemy documents and the information obtained from prisoners of war and native civilians.

Interrogation of Prisoners of War Section. This section prepares students to understand the nature of captured soldiers and the techniques that are effective in obtaining willing co-operation from them.

As in all courses taught in the division, the organization of the Interrogation of Prisoners of War Team, its equipment, and its place in intelligence staff sections are studied. The student receives a course in the historical backgrounds of Germany and Japan and of the events leading up to World War II. The psychology of surrender, the fundamentals of methods of interrogation, and the exploitation of such factors as shock, fatigue, and state of morale are covered thoroughly with a view towards instilling basic factors pertinent to successful interrogation. The mechanics of evacuation of prisoners and the description, classification, and evaluation of captured documents taken from prisoners are taught. The student is also shown how the G-2 collection agencies work and how close liaison and co-operation increase the over-all efficiency of the Interrogation of Prisoners of War Team. Last but by no means least, the student also learns how to write his report so that it can be understood and digested easily.

Operation Husky

The wind-up of the course is a command post exercise which takes in all students from all departments and allows them to utilize the knowledge and techniques gained during the weeks of study. The exercise is called Operation Husky, a problem based on the Allied amphibious landings on Sicily. The historical action is followed to the fullest practicable extent, with students solving the same problems required of the intelligence sections and teams of the units which participated in the actual operation. Student officers are assigned as G-2's and S-3's, and enlisted students in the Department of Order of Battle and Interrogation and Department of Aerial Reconnaissance act as Order of Battle teams, Interrogation of Prisoners of War teams, and Photo Interpretation teams. Instructors act as umpires.

The purpose of the problem is to give the student an opportunity to apply and integrate the instruction received in the classroom. In a command post exercise of this type, the student gains realistic experience in the collection, collation, evaluation, and interpretation of information and the disseminating of military intelligence. The students in Order of Battle, Interrogation of Prisoners of War, and Photo Interpretation are given opportunities to apply their specialized fields to a specific combat problem and to work as an integral part of an intelligence section.

The exercise consists of two phases, namely the planning phase and the operational phase. The planning phase is of three days' duration, designated as D-60, D-30, and D-15. Orientation, organization of units, and planning requirements for the operation are completed during this phase. The three days of the operational phase run continuously and are designated as D 4, D 5, and D 6. Requirements include intelligence

and counterintelligence plans, isums (intelligence summaries), oral estimates of the situation, current enemy capabilities, periodic reports, and intelligence annexes. Interrogation of prisoners of war, photo interpretation reports and enemy order of battle are of major importance during this intensive phase.

Unit umpires, consisting of faculty members, had formerly accomplished a detailed study of the actual operations of the respective units of the U. S. Seventh Army to which they are assigned for umpire purposes. Current orientations and requirements based on historical action are presented to the students by the umpires.

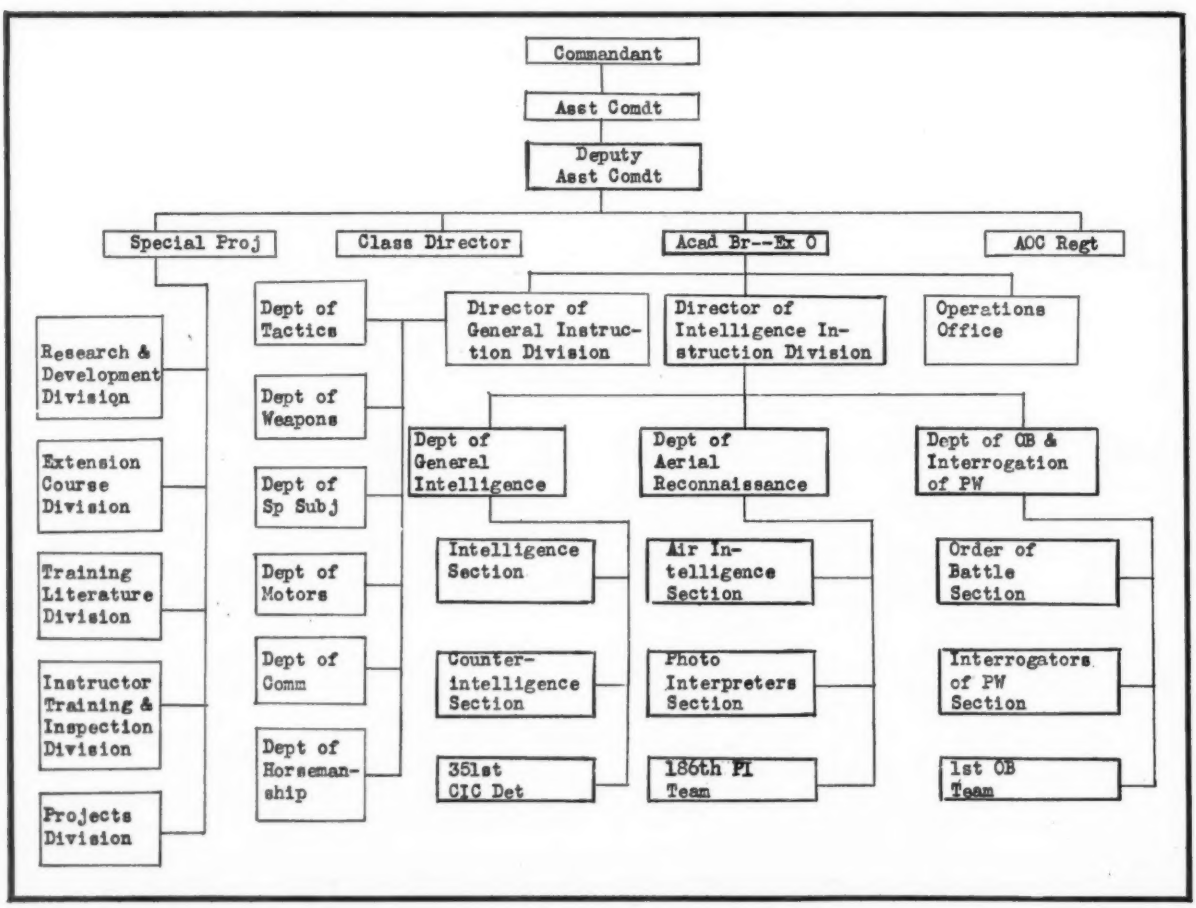
After Graduation

What happens to the graduates, both officers and enlisted men, of the Intelligence Instruction Division? Combat intelligence? The war is over. Order of battle? Photo interpretation? Again, the war is over and the armies of our enemies are nonexistent. How is a commander going to utilize the knowledge and skills of these graduates? Not only how, but is he? These questions could all be passed over by a shrug of the shoulders and utterance of the timeworn phrase, "That is a responsibility of command." Army Ground Forces desires something a little more—quite a little more—concrete than that.

The Intelligence Instruction Division, in all phases of its instruction, has kept always in mind that the graduate would be equipped to teach to his intelligence section or order of battle team approximately what he learned as a student. Outlines of the conferences, lectures, and exercises are as near complete and comprehensive as it is possible to prepare them. Further, the graduate has been given a background, or insight, into his special field of intelligence so that, through application of what he already knows plus study and work in what he does not know, he may in the future become an expert in his field.

The School cannot produce experienced intelligence experts in nineteen weeks. It can only start the officer or enlisted man on the road to becoming an expert. Commanders can furnish the opportunities for graduates to continue progress down this road. If this is not done, time, money, manpower, and effort are wasted.

An indication of the importance attached to postwar training in intelligence is the fact that about 50,000 man-hours are being spent by The Ground General School to prepare extension courses in intelligence for reserve officers. Major General W. G. Wyman, AGF G-2, probably put the whole thing in a nutshell when he stated that, "Intelligence fights wars between wars."



Ammunition Dump Fire Fighter

Corps of Engineers Photo

Side view of Fire Fighter.

*by Lieutenant Colonel C. M. Parkin, Jr.**

EVERY man was at his station and all bets were down, but the betting was more out of loyalty, hard work and hope than perhaps anything else. Yes, the men who had worked long and hard on the ammunition dump fire fighter were ready to bet their last penny that the 800 gallon, 80 octane gasoline fire would be extinguished by their fire fighter within 70 seconds.

The General had just arrived and all the spectators were anxiously awaiting the demonstration. When the Colonel nodded that the General was ready, the final signal was given and 16 enlisted men, each standing behind a 55 gallon drum of the 80 octane gas, quickly overturned the drums of gasoline, picked up the empty drums and hurried away from the immediate area. Shortly after that, a lighted torch was thrown to the edge of this gasoline dampened area. Immediately there was a roar, followed by a sudden surge of air toward the fire, and because of the intense heat most of the group had to withdraw a bit from the blaze.

No sooner had the fire been lighted than the ammunition fire fighter, which was standing about 100 yards away from the inferno, started toward the blaze. As the vehicle entered the blaze, low expansion synthetic foam was emanating from both nozzles, and this stream was being directed toward the perimeter of the fire. Gradually the fire was encased by this white, three-inch blanket of foam except in the center where the gasoline was burning intensely. When the fire was completely surrounded by foam it was then only a matter of seconds until the fire in the center was also covered with the white, soapy, synthetic mixture of foam and water.

Glancing at our watches we saw that this 800 gallon gasoline fire had been completely extinguished in 60 seconds. "Not very spectacular," was a comment made by a visiting expert; so I showed him the following quotations:

From the Hq. XIV Corps, dated March 24, 1944—"We've had a fire on every island that we have had ammunition; and there is no hope of conditions changing."

From another source—"Enemy artillery caused three fires early in the morning of February 7. During the 70 day period, 34 fires destroyed a total of 1,409 tons of ammunition. This is an average of 41.4 tons per fire and 20.1 tons per day. The fact that more ammunition has been destroyed is due largely to the courageous and heroic efforts of Depot and Engineer personnel in fighting the spread of fires in spite of shell fire, bombing and danger from burning ammunition itself."

When our spectator had finished reading the quotations he changed his mind, and well he should, for it is quite evident that an answer to the problem of how to put out ammunition dump fires would be a real saving in supplies, equipment and American lives.

Now let me introduce you to our vehicle, the ammunition dump fire fighter. Ordnance requested the Corps of Engineers to modify a track vehicle that would be useful in extinguishing live ammunition dump fires

*The Engineer Board, Fort Belvoir, Virginia.

and in separating the burning ammunition from the ammunition that was not burning. This request for a development project was received at the Engineer Board, Fort Belvoir, Virginia, early in the year 1944.

The ammunition dump fire fighter is a Sherman tank equipped with a bulldozer. This tank was further altered by removal of the turret and armament. The interior of the tank was cleared of a great deal of equipment and provided with reservoirs to carry approximately 1500 gallons of water and a separate engine driven pump. A centrifugal pump was used that was capable of handling 500 gallons per minute, at 125 pound pressure. This pump is directly connected to an 85 horsepower, 221 cubic inch, eight cylinder engine, which is cooled by the pumping water.

To facilitate movement of the tank in case an emergency might arise, the bulldozer blade was designed and arranged for instant jettisoning. Another safety measure that was taken was to fasten a three-quarter-inch tow cable to the back of the vehicle. The purpose of this tow cable was to have a means of retrieving the vehicle from a hot live ammunition dump fire in case the fire fighter should be incapacitated by the exploding ammunition.

Both water turrets are remotely controlled to rotate through 180 degrees on the horizontal and 30 degrees vertically above or below the horizontal. These movements are performed by electric motors and are controlled from two stations, side by side, within the tank. It is possible for one operator to operate both nozzles.

On the back of the vehicle, as a squaw would carry her papoose, is located a separate foam reservoir of 150 gallon capacity. The foam solution may be injected into the suction side of the pump when required by means of a small electric driven pump. Thus the nozzles may be used with either water or foam or a mixture of both. The vehicle is normally operated by a crew of three, one driver, who operates the tank and the bulldozer, and the assistant driver, who opens the foam valves and assists the driver and acts as an observer, and the fire fighter who normally operates the turrets and directs the tank operation by means of light signals and the intercommunication system.

In addition to the fact that all personnel within the tank have intercommunication with each other, radio communication from the outside is also provided. For safety reasons, the personnel stationed in the interior of the tank are provided with individual oxygen cylinders should the occasion arise when gases are encountered. Then, for further protection against blast pressures, the personnel are surrounded by an entirely sealed structure.

The armor of the tank is the same as the Sherman tank with the exception that the underneath hull of the tank has been reinforced with a five-eighths-inch plate for protection from bursts beneath the tank. The overall length of the tank with the bulldozer is 25 feet. Its total weight as it starts into a fire with its tanks full of foam and water is 80,000 pounds and the speed of the tank under such conditions is 23 miles per hour.

The technique that the fire fighters have found successful in fighting simulated ammunition fires with the ADFF is as follows:

To hit the hottest part of the fire with the maximum amount of low expansion foam and water mixture.

Next, to cut fire lanes with the bulldozer blade, thus separating the burning ammunition from the ammunition that is not burning.

Then to bulldoze dirt on to the burning ammunition.

Now this vehicle is an experimental vehicle and not the real answer to the problem.

Plans are under way for a better ADFF and it is a generally accepted fact that the new model will out-perform the other model in every way.

Ammunition Dump Fire Fighter Entering a Gasoline Blaze.

Corps of Engineers Photo

DEMOBILIZATION

*by Captain Norwell M. Walker**

From V-E Day to January 1, 1947, 8,188,000 men and women were separated from the United States Army. World War II demobilization has been successful, but only future history will be able to determine the degree of success. Here is the story of how demobilization was accomplished.

THE history of separation centers dates back to January, 1943, when it became apparent that such an organization would ultimately be established to carry out the War Department plans for smooth and orderly demobilization after the defeat of the Axis Powers.

One of the first steps was to review the present discharge regulations and procedures. At that time the greatest number of dischargees were CDD (Certificate of Disability Discharge), except for approximately 700 to 1,000 men per month over 38 years of age, who were being returned from overseas under War Department directives to accept key jobs in industry. Most of these men over 38 were coming into Fort Slocum, New York.

In February, 1943 steps were taken to simplify the basic discharge procedures and test installations were established at Tilden General Hospital, at Fort Dix, New Jersey, the Fort Dix Station Hospital and Fort Slocum.

In the months that followed the CDD procedures were further developed. The number of dischargees over 38 returning from overseas had been reduced substantially and, in that, it was deemed necessary to have a larger flow of separatees (persons being separated) to set up a real test installation, it was decided to set up the first pilot separation center at Fort Dix.

The reasons for the selection of Fort Dix for this test separation center were as follows:

1. Test procedures in separation were already operating in the two hospitals at Fort Dix.
2. The Second Service Command had a large service population and, by funneling all enlisted men entitled to travel to any point within that Service Command and eligible for discharge into Fort Dix, the desired larger flow would be obtained.

On March 30, 1944, the War Department established its initial Separation Center at Fort Dix and designated it as the Fort Dix Separation Center, with the Commanding General, Army Service Forces charged with its operation.

From this first separation center, the War Department hoped to, and did, learn many valuable lessons that were helpful when hostilities terminated and the Demobilization or Separation Program went into full swing.

Separation centers were established to effect discharge or release from active duty of personnel transferred thereto under War Department directives. In effecting this discharge or release from active duty, Separation Centers were responsible for:

1. Bringing the records of the separatee up to date.
2. Complete physical examination of each separatee.
3. Payment of all pay and allowance accounts due.
4. Counseling the separatee as to benefits and rights to which he was entitled for his services in the Armed Forces.
5. Complete processing of the separatee for separation within 48 hours after his arrival.

Because of the reduction in discharge rate, the Fort Dix Separation Center separated only about 400 men during its first month of operation. In order to increase the flow all enlisted personnel entitled to travel pay to any point within the First, Second and Third Service Commands and eligible for discharge, were ordered sent to Fort Dix and, in addition, all men returned from overseas through the four East Coast Ports.

In order to gain experience in processing officer and female personnel, these two groups were added to the enlisted personnel formerly being processed.

The flow at Fort Dix then increased to approximately 2,000 per month and provided a testing laboratory for all the Army Service Forces staff divisions interested in the separation activities. At Fort Dix, provision was also made to train the cadre for other separation centers

*Student, The Armored School.

to be activated and key personnel from the Fourth, Sixth, Eighth and Ninth Service Commands were sent there during June and July for training.

This led to the establishment of four other separation centers, as the number for separation had begun to warrant the establishment of separation centers to serve certain geographical areas. On July 24, 1944, separation centers were established at Fort McPherson, Georgia; Fort Sheridan, Illinois; Fort Sam Houston, Texas, and Presidio of Monterey, California.

On October 15, 1944, Separation Centers were also established at Fort Devens, Mass.; Camp Atterbury, Indiana, and Jefferson Barracks, Missouri. The establishment of the last three separation centers brought to a total of eight being run at this time and also brought about a change in the sending of female personnel to separation centers.

Heretofore all separation centers were authorized to separate female personnel and separate facilities were provided for them, but with the addition of the last three separation centers it was decided to limit female separation activities to the first five centers established. The chief reasons behind this policy being the economizing of operating personnel and the fact that the female separation facilities already established were considered adequate for the loads (number of separatees processed daily) that they were carrying.

One point that might be brought out at this time is that the Separation Centers established thus far and those to be established later on were, in most cases, located at the same stations as Reception Centers and Reception Stations. A Reception Center being an installation where individuals being brought into the Army were initially processed for clothing and records and a Reception Station being an installation for the handling and processing for assignment, officers and enlisted men returned from overseas. Wherever two or more of these installations were located at the same Post, Camp or Station, the designation of War Department Personnel Center was given to the combined installation. Chief of the reasons for this step being the economizing of overhead personnel required for the operation of the War Department Personnel Center.

Ten more separation centers were added in November, 1944, these being Camp Beale, California; Fort Bliss, Texas; Fort Bragg, North Carolina; Camp Chaffee, Arkansas; Fort Douglas, Utah; Fort Leavenworth, Kansas; Fort Logan, Colorado; Fort Lewis, Washington; Camp Shelby, Mississippi and Fort Snelling, Minnesota. The Separation Center at Presidio of Monterey, California, was discontinued at this time and its function of separating personnel was transferred to the Center at Camp Beale. Also, at this time, Fort Bragg took over the separation of female personnel for the area formerly served by Fort McPherson.

A recapitulation of the separation centers established up to this time shows 17 established, five of which separate females, and all designated to serve certain states.

The question presents itself, that why so many separation centers at this time, for it is only November of 1944, and the war is still going strong on both fronts. The answer to this query is:

(1) An increasing number of men over 38 years of age being separated from the service, and men who failed to meet the minimum physical standards for induction.

(2) A larger training nucleus for the stepped-up separations that will follow our victory on the European front, which everybody hopes is not too far off.

These separation centers were adequate to perform their job and up to May 12, 1945 had separated approximately 250,000 men.

With the advent of V-E day, the separation program was stepped up, as the point system was established and men with extensive combat experience were eligible for separation from the Army and where separation loads had been a few hundred a day, they were stepped up to several thousand a day. With this step-up, additional personnel were required in the separation centers and the then old-timers in the separation centers became busy training new personnel which had been added to help carry the load, at the same time performing their job of separating personnel received for separation.

At this time, let us consider the Separation Center processing, or procedure. In June, 1944 a group of staff officers from Headquarters, Army Service Forces prepared at Fort Dix a tentative manual for the processing of officers and enlisted men for separation from the Army. During August, 1944 this group of officers visited the five separation centers in operation and, as a result of this visit, the manual was entirely revised. During the period from August, 1944 to May, 1945 the manual was thoroughly tested and revisions were made as a result of recommendations received from the Separation Center Commanders and of actual visits to the Centers. It was then realized that the actual separation center processing could be even more standardized than it was, so Fort Sheridan became a pilot model for this program, which also included a plan whereby each separation center would operate to full capacity with daily separation figures running up into the hundreds or possibly thousands. One of the outcomes of this plan was TM 12-222, which helped to standardize operations, as well as serve as a guide for the Separation Centers yet to be established. This standardization program took place at the same time the loads were stepped up with the advent of V-E day.

May 12, 1945, V-E day, found us with an army of approximately 8,300,000 men, but soon separation is to take a heavy toll of this strength.

A check into the separation figures for the period May 12-31, 1945 shows that 56,000 military personnel were separated from the Army. During June, 1945, which was the first full month for separation following V-E day, 156,000 persons were separated, which was

quite an increase over the separation figure for the preceding month and showed that the V-E day separation plan was in full swing, for there were actually 56,000 more separated than anticipated. During this month four more separation centers were established, these being Fort Meade, Maryland; Camp Blanding, Florida; Camp Gordon, Georgia; and Fort MacArthur, California.

July 1945 saw 164,000 separations from the Army, which with the June total, put the War Department ahead on its planned separation program, and also indicated that the separation program was progressing better than expected. Indiantown Gap was established as a Separation Center this month.

August 1945, a month and a year no one will ever forget. The war was over, and to millions of men this meant release from the Army and home. Exactly when was something each individual did not know, but he was hoping it would be in a very few weeks.

Taking a quick look-back to this period, August 1945, several important factors should be kept in mind in considering the separation program.

1. A point system is the basis of the criteria for discharge and will only make so many eligible for discharge at one time.

2. There are several million troops in each theater and only so much transportation available.

3. A world war has just been won and the United States has certain international commitments as a result of this victory.

In this month the only change in the separation set-up was the moving of the Separation Center from Fort Snelling, Minnesota, to Camp McCoy, Wisconsin. August separations totaled 205,000 men.

Victory over Japan brought forth the War Department Plan for separation following V-J Day. As to be expected this plan provided for release of as many men as possible from the Army. The largest army demobilization in the history of our country was starting.

Twenty-two separation centers were in operation on September 1, 1945 and, while it was apparent that they would be able to separate more than originally planned, there was danger of these facilities being taxed beyond their extreme limits, notably housing, so authorization was given to each of the Service Commands to establish Separation Points at posts, camps and stations under their jurisdiction. A separation point was a separation center in miniature, that is they would be only set up to separate from 25 to 250 men a day, depending on facilities available. Likewise, the Commanding General, Army Air Forces was authorized to establish separation bases for the same purposes. Approximately 147 separation points and 45 separation bases were set up during September and October, 1945. While no one of these points and bases separated a great number in any one day, together they separated a very large number and permitted many more separations from the Army than the War Department thought possible at this time. Too, they took quite a load off of the separation center system and prevented any excessive backlog being built up.

Some 597,000 discharges were affected during September, 1945. The largest number of separations to take place during any one of the months during demobilization occurred in October 1945, when 1,270,000 separations took place. Every separation activity was on a seven-day week, and some were working two shifts a day. Five new separation centers came into being during the latter part of this month, although they were not scheduled to open until November 1, 1945. They were Fort Monmouth, New Jersey; Fort Knox, Kentucky; Camp Fannin, Texas; Camp Grant, Illinois and Fort Des Moines, Iowa, the latter the only all-female separation center ever established. Number one priority was in effect for obtaining operating personnel for the separation centers, for the point system was taking its toll among operating personnel. The separation program was exceeding expectations and the results were encouraging.

Twenty-seven separation centers plus the various separation points and bases were operating on November 1, 1945 and this, too, was a big month as 1,170,000 men and women were discharged. Our 8,300,000-man army on V-E day had shrunk to less than 5,000,000 men by the end of November.

During this month it was felt that the separation centers alone could handle all separation, so instructions were issued to gradually do away with the separation points and bases. This would economize greatly in operating personnel without slowing down the demobilization program, so by the end of November approximately half of the separation points and bases were discontinued.

The question has probably arisen in quite a few minds as to the system of control in sending large numbers of men to separation centers. In brief, any installation such as a port or post with a group to be sent to a separation center would report the number of men and the center to which they wanted them sent to a control section in their Service Command. This control section would contact the control section of the Service Command concerned and request clearance for this group. If loads permitted they were given the go ahead and, if not, they were diverted to another center that could handle them. In this manner peak loads were kept coming into the separation stream and large back-ups were prevented at ports and posts.

December showed that the peak had been reached in the demobilization program, but it saw 1,102,000 separations. All separation points were discontinued then and only about 25 separation bases were left to assist the separation centers. Many separation centers separated over 1,000 a day, and Fort Dix and Indiantown Gap went over the 4,000 daily mark during this month. Camp Atterbury separations exceeded over 3,000 a day.

The peak of demobilization had passed, but there

were several million men and women still to be separated. Separating these men and women, when eligible, yet cutting down the size of the separation system with a resulting economizing, is the next cycle in which we find the discharge program.

In January, 928,000 were discharged and the separation bases were discontinued. Instructions were sent out to discontinue the separation centers at Fort Des Moines, Fort Monmouth and Fort Knox on February 15, 1946, with the flow of personnel to these centers cut off effective January 15, 1946. The flow was cut off 30 days prior to the date of inactivation so as to enable the separation centers to separate any administrative holdovers among the separatees, as well as close out all of the administrative matters found in a separation center.

Another big drop in separations occurred in February 1946, and only 690,000 men and women were discharged. Indiantown Gap, Camp Blanding and Camp Fannin centers were ordered closed as of March 31, 1946.

In March 1946 separatees totaled 413,000 and another cut in separation centers was ordered for April 30, 1946. This time Camp Gordon, Fort MacArthur and Fort Logan were the centers affected. While not originally scheduled to do so, Camp Grant also closed out in April.

During the next three months 622,000 were discharged, which was less than the total discharged for February 1946 alone. Jefferson Barracks, Fort Devens and Fort McPherson Separation Centers went out at the end of June.

The V-J Day Plan figure for discharge had been met in May, 1946, but there were still a large number of men to be separated. The size of the army had been set at 1,070,000 by July 1, 1947 and, in June, 1946 there were 1,890,000 in the Army. Separation Centers were the only answer for the separation of this group of approximately one million men in the coming year, for they alone were capable of discharging large groups such as might arrive in shipments from overseas. It was evident though that more separation centers could be discontinued, and the remaining ones still handle the anticipated load. The result was the closing of the separation centers at Camp Chaffee and Fort Bliss as of June 30, 1946 and those of Camp Shelby, Camp Atterbury, Camp McCoy, Fort Douglas and Fort Leavenworth on July 31, 1946.

Another change took place in June 1946, which was the Army reorganization. The responsibility for separation center operation was transferred to The Adjutant General, as Army Service Forces as such was abolished. This was merely an administrative change as the actual operation of the separation centers was not affected. The Armies replaced the Service Commands in regard to functions affecting the separation centers.

Seven separation centers were in operation at the end of July, 1946, a month in which 137,000 were discharged.

August saw 122,000 separations which was the smallest number separated in any one complete month since V-E day.

The Armed Forces Leave Act was passed in this month and it greatly affected the separation program in that it meant enlisted men would be placed on leave rather than separated on the day they left the separation center.

In September, 1946, 102,000 were discharged. October separations jumped up to 179,000 and, in this month another change took place in the separation program. Posts, camps and stations, with adequate facilities, both physical and financial were authorized to separate army personnel. This meant that large groups coming from overseas would be the chief users of the separation centers in operation.

Separation Centers at Fort Meade and Fort Sam Houston were closed as of November 15, 1946 and Fort Bragg on December 31. Over-all separations for November were 157,000.

The War Department Separation Center System was set up as follows on December 1, 1946. Fort Dix, to take care of shipments from the Atlantic and Caribbean, with Fort Sheridan to take care of men arriving in the East and whose homes are in the West and midwest. On the West Coast, Camp Beale and Fort Lewis, with Fort Sheridan taking groups living in the midwest and East who arrived on the West Coast. The December separations totaled 118,000.

On January 1, 1947 a separation center was established at the New Orleans Port. This will take care of the shipment coming in from the Caribbean and will give complete coverage for our coastal ports. The coverage then will be Camp Kilmer for the East, New Orleans for the South and Camp Stoneman for the West. It is worthy of note that this last change will have the net result of placing the separation and reassignment activities on individuals returning from overseas, as well as the Overseas Replacement Depots, in one and the same post. Posts, camps and stations will take care of zone of interior personnel, to be separated. July 1, 1947 will find us with a 1,070,000-man army.

From V-E Day to January 1, 1947, 8,188,000 men and women were separated from our army. This is almost the total number we had as of V-E Day, so a brief accounting must follow.

Selective Service for a time continued to operate and bring in some men. However there were no inductions under Selective Service after October 15, 1946. Also men discharged have reenlisted, so there has not been an almost complete turnover as the figures might indicate. The Strength of our Army on January 1, 1947 was 1,319,483 men and women. Our 8,300,000-man army has been depleted by separations, and separations still go on. Demobilization has been successful, but only future history will be able to determine the degree of success.

British Veterans Return to Civvy Street

*by G. W. L. Day**

THE fighting man in the modern army has to adapt himself to a discipline and a routine completely divorced from his life as a civilian. It takes six months of intensive training to fit a man for his job in the Army. When he is demobilized and goes back to "Civvy Street" he may find himself, particularly after long service abroad, a stranger to civilian ways and at a loss as to how to pick up the threads of his old life.

The repatriated prisoner-of-war had the biggest handicaps to overcome. To meet his difficulties, and to help him to fit into civilian life and to catch up with current events, Britain's War Office, in London, evolved a new idea—The Civil Resettlement Unit (C.R.U.). This was tried out with such good results on 25,000 repatriated prisoners that it will now most probably be used to help the regular soldier.

C.R.U. is a sort of factory for turning Britain's soldiers into civilians.

Not Compulsory

At first sight a C.R.U. looks rather like an ordinary military station, but it is really something very different. A man is not obliged to attend one when he is discharged; military discipline is relaxed, and he can leave whenever he likes. The food is excellent, and there is no standing in line to re-awaken painful memories. (It was found that men would actually go without their food rather than line up for it.) On the contrary, a man is waited on as if he were a visitor at a guest house.

Every detail in his four-week stay is worked out with great care. Arriving on Thursday afternoon, the soldier is at once given a good meal and then taken to the dormitory where he is invited to choose his bed, perhaps, next to another man he may have got to know and like. The "old boys" who have been there a week or two help the "new boys" to settle down. In the evening there is a dance for those who like it. Though a soldier may not know it, the psychiatrist has his eye on him. It is said that from watching a man's behavior on the dance floor he can tell how long it will take to resettle him.

Next morning the commanding officer gives the men a talk, not so much to convey any information as to make them feel at home. After this they are drafted into a group of 15 men, or less, and shown round and introduced to the staff.

This staff has been carefully chosen and trained. Besides the commanding officer, the second-in-command and his assistant, there are three administrative officers, four syndicate officers and five or more specialist officers.

Each syndicate officer acts as "father" to a group of 60 men who are split up into four parties of 15 containing a mixture of "old boys" and "new boys." The five specialist officers consist of a vocational officer, with his staff of personal selection sergeants, and a Ministry of Labor liaison officer, who discover what sort of a job a man really wants to do and is best suited for, and then try to fit him into it.

Then there is a professional woman social worker, called the civil liaison officer, who helps out with the soldier's problems at home. Finally there is the technical officer and his staff who run the workshops, where they can try their hand at making something; and one, or perhaps two medical men who hold no sick parades but "run a practice" inside the unit.

Now comes one of those twists which are peculiar to the C.R.U. All four groups which have been moving round the unit are shuffled up and asked to re-group themselves into four new parties of 15 each. This is done very quickly and decisively.

The soldier now goes home for the week end with the feeling that he is already becoming a member of another community. Every week end of his stay at the C.R.U. he is encouraged to go home. Beginning married life again is usually a difficult task. He has been developing in one way, his family in another, but whereas after his long years abroad, the man is acutely aware that he must make a great effort to adjust himself to a new way of life, his wife and children may not feel the need to make any effort to adjust themselves to him.

As a rule there is a delighted and excited period of reunion lasting for a few weeks, followed by a reaction when everything seems dull and flat. This means that the process of readjustment has begun. The returned father feels a crippling lack of self-confidence and a sense of disappointment at the deflation of his rosy dreams, while to his family he seems "strange" or "dif-

*British journalist and feature writer.

ficult." Serious difficulties arise in about one family in three. Violent quarrels over trifles break out constantly. The father begins to fancy that he is in a hostile, alien world and that even his own wife and children are turning against him. They themselves look on him as a ghost and a stranger.

Winning Confidence

These are the kinds of difficulties which the C.R.U. has to help overcome. Successful intervention between man and wife is such ticklish work that the Civil Liaison officers have to be highly qualified and experienced women.

After a man is settled in, his next two weeks are spent in exploring the near-by industrial community with his group. Each group visits factories, shops and training centers, and if he wishes he can attend forums and discussions on various questions about jobs. When the C.R.U. was set up, officials of the Ministry of Labor arranged for groups representing different industries and trades to visit the unit so as to learn the returned soldier's point of view and to make suggestions as to how contact could best be made with those "on the job."

This visiting period is the time when the plans and dreams, formed perhaps in some remote military station, or prison camp, are brought up against harsh reality.

If he likes, he can spend most of his time in a "job rehearsal"—for instance, in an aircraft factory, as an amateur assistant to a bricklayer, or as a shop assistant—where he can get the feel of a job without shouldering any responsibility. In this way he finds his feet. It is surprising how much self-confidence a man gains by selling goods behind a counter, even if he has no intention of becoming a shopkeeper. The visits to factories also have their psychological effect. Here a man comes in contact with noncombatant civilians, and is introduced to a different world, where personal initiative and competitive struggle take the place of obedience to military orders.

Until quite recently resettling prisoners-of-war was thought to be chiefly a matter of remedying the effects of malnutrition and bodily illness. To show how false this idea can be, a team of ex-prisoners only six weeks after their return home won nearly all the events in a sports competition against physical training instructors. The truth is that the difficulties of these men are much more psychological. So psychiatrists lend their services to the C.R.U., help the men with their personal problems and join in the discussion groups.

Some of this therapeutic work consists of "filling in the gaps." Men who have been abroad and out of touch for several years, need re-education in many things. In the C.R.U. they see films of the recent past, they attend lectures where recent events, which most people have read about in the newspapers, are described. They can join in discussion groups and get the hang of changing views and current topics.

Most interesting of all, perhaps, is the hammering out of a new technique for releasing pent-up emotions by a novel sort of teamwork. Some things, it was found are best ventilated in private interviews, while others are dealt with better by discussing them in groups of a certain composition, setting and atmosphere.

Sharing Problems

The best sized group is from six to 12 people, with a special member—usually the psychiatrist—who plays rather the role of a doctor who is treating a patient psychologically. His job is by subtle means to raise the level of the discussion far above that of mere everyday conversation. Properly handled, a discussion group of this sort brings about a sharing of emotional problems and diffuses an insight into the best way to solve them. It has been found that where an individual is powerless, a group can perform "psychological miracles," each man putting something into the pool and drawing something out of it.

Lieutenant X, who was captured in 1940 and suffered badly in a German prison camp, returned home in 1945 with a fear of crowds, of traveling and of the dark. He was "up against" his family, and when he joined a C.R.U. he had no self-confidence and was very depressed. But after a few weeks he was taking a much greater part in the group discussions, and within six weeks his confidence, in his own words, had been regained and his morale was up 100 per cent. His greatest difficulty, social relationships, he overcame almost entirely.

Private Y, who was a prisoner-of-war in Hong Kong, was ill and extremely worried about his future. After a course at a C.R.U. his health improved, his mind was at ease and his self-confidence came back. He is now in a temporary government job before taking his examination for the British Civil Service. Private Z, who spent most of the war as a prisoner in Poland and Germany, has been changed from a rather sullen and lonely man into a very good mixer with a keen interest in his work and surroundings.

The Civil Resettlement scheme will most probably be used for Britain's Regular Army. A man will hear all about it before he joins. During his service he will be reminded of it constantly by visits to C.R.U.'s, films, discussions, and so forth, and on his discharge leave he will be invited to attend a course. If he refuses to come, Civil Resettlement officers will seek him out and try to overcome his objections. His family will also be invited to visit the C.R.U. while he is there. After the course the Army will still keep in touch with him to make sure he is properly settled, and even if he did not attend a C.R.U. course a paternal eye will be kept on him for 12 months after his discharge.

Britain's Royal Navy seems disposed to join in, but the Royal Air Force has a scheme of its own. The problems of each Service are not quite the same, but eventually all three of Britain's Fighting Services may come together in a joint scheme based on the C.R.U.

U. S. Zone Constabulary Mounted Platoon Composed Of Volunteers

Composed of 41 enlisted men and one officer, the Horse Platoon of the 16th Constabulary in Berlin is an all volunteer unit. Material in this article on the Horse Platoon is taken from a recent feature story in the "Berlin Observer" written by Maurice Nutter, a staff member of the newspaper.

BERLIN'S modern knights and their high-stepping mounts, known as the Horse Platoon of the 16th Constabulary, unlike other units in Berlin, is an all volunteer outfit. So writes Maurice Nutter in a recent issue of the *Berlin Observer* of which he is a staff writer.

The full strength required for the unit to function properly, according to Nutter, is a platoon numbering 41 enlisted men and one officer.

Each man before being taken into the unit is interviewed and thoroughly oriented on his future duties. A great deal is demanded of every member of the platoon. They are required to have high spirit, exacting discipline and exceptionally good military bearing, because this platoon is trained for not only show purposes but also for certain security missions. These volunteers are picked to perform the duty of honor guards, escorts, reception parties and to participate in every important ceremony that takes place in Berlin.

Nutter writes further that the platoon was formed October 1, 1945, as the Horse Platoon of the 78th Cavalry Reconnaissance Troop of the 78th Infantry Division, then located at Hofgeismer, Germany, and alerted for movement to Berlin. Major General Ray W. Barker, then commanding general of the Berlin District and the 78th Infantry Division, and Colonel John C. MacDonald, then assistant commander of the 78th Division, organized the platoon.

First Lieutenant Mathew B. Quinn, then with the 78th Cavalry Reconnaissance Troop, was placed in command. His first mission was to select and train personnel and obtain equipment for the men and horses. Colonel MacDonald personally selected the mounts for the platoon. They were shipped by the 6835th Remount Depot from Bad Homburg, Germany.

The Platoon Commander, Lieutenant Quinn, who helped form this famous unit is still in command of it. He believes the Horse Platoon will stay on active duty in Berlin as long as there is an occupying force in Germany. Lieutenant Quinn is a New Yorker. He enrolled in the Cavalry School at Fort Riley, Kansas, graduating in March, 1943.

Right-hand men of the Platoon Commander, according to Nutter, are Platoon Sergeant Hugh E. Carwile and Stable Sergeant Flautte Wemack.

The Platoon's first big assignment in Berlin was on January 1, 1946, when it was called upon to guard the chiefs of all the Allied Powers at a reception given by the United States Deputy Military Governor in Dahlem. Another important mission the unit was called upon to perform was to act as honor guard, last June 26, for 12 newspapermen and publishers who arrived in Berlin on an inspection tour.

In May, 1946, Nutter continues in the *Berlin Observer*, which is the weekly Information and Education newspaper published for the Berlin Command, the Horse Platoon became a part of the 16th Constabulary Squadron and was attached to Headquarters Troop. It occupies the area which was formerly the Deutsche Reitschule, famous stables where many members of the Prussian nobility kept their horses. The area and buildings had greatly deteriorated during the war years but had not been bombed. The Horse Platoon has improved it. They staged some fine Interallied horse shows on the old grounds.

The men of the platoon are at present billeted in two villas in the vicinity of the stables at Zehlendorf-West, but will be moved shortly to newly renovated barracks adjoining the Zehlendorff stables. These stables were at one time occupied by the mounted SA Troopers of the German Army.

Armored Division Associations

3d Armored Division

Formation of the Third Armored Division Association by the men and officers who served in the Spearhead Division of the First Army since December 7, 1941 is being planned by Brigadier General Doyle O. Hickey, former division commander, with temporary headquarters at Fort Monroe, Virginia.

The proposed association, which will be national in scope, has for its purpose the preserving of the *esprit de corps* of the division, giving assistance to its former members, and providing a periodic newsletter to keep members informed about their wartime buddies. Assistance also will be given in the organization of local posts.

A permanent organization, with regularly elected officers, a paid civilian secretary and a permanent home office, will be effected at the first annual reunion, tentatively set for the fall of 1947 at a place yet to be determined. Letters announcing the division association have been sent to approximately 6,000 former members whose addresses were available, but others are being notified of the proposed organization through newspaper stories.

Application blanks for membership in the association may be obtained by writing to The Secretary, Third Armored Division Association, Room 203, Building 134, Fort Monroe, Virginia.

The Third Armored led the First Army from the beaches of Normandy through France, Belgium and to the banks of the Elbe in Germany. It was the first division to capture a town in Germany and the first division to pierce the Siegfried Line. Led by Major General Maurice Rose, it made history when it closed the Falaise Gap, when it captured Mons and Cologne, and when it made a spectacular one-day 100-mile dash to Paderborn. This latter action resulted in cutting off 375,000 Germans in the Ruhr Pocket.

General Hickory took over when General Rose was killed at Paderborn and led the division on through to finish its last fight with the capture of Dessau on the Elbe. Since the war, General Hickey has received letters from hundreds of his former comrades in arms, all urging him to establish an organization through which they could reach their wartime buddies and keep alive the friendships made during their combat service.

* * *

4th Armored Division

The Editor
Armored Cavalry Journal
1719 K Street, N.W.
Washington 6, D. C.

Dear Sir:

Will you please print the following information on the 4th Armored Division Association?

A national 4th Armored Division Association was organized last year with an executive committee consisting of Major General John S. Wood, Retired, now a member of the Intergovernmental Committee on Refugees; Brig. General Bruce C. Clark, Plans Secretary, Hq AGF; Mr. Graham Kirkpatrick of Birmingham, Alabama; Lt. Col. C. W. Abrams, The Armored School, Fort Knox, Kentucky; and 1st Sgt Charlie P. York, Recruiting Sergeant, Piqua, Ohio.

Kirkpatrick found business too pressing to continue as Secretary-Treasurer and turned over the fruits of his efforts to Abrams, with the result that the Fort Knox Chapter became temporarily the nerve center for the growing organization. Branch chapters have already been formed in Boston and New York, and others are in the formative stage in other cities. C. L. Caraganis, Boston Market Terminal, Boston, Mass. and Abraham Baum, 2855 Claflin Avenue, Bronx 63, New York, are respective acting presidents.

A national convention will be held on June 19, 20 and 21 at the Hotel Pennsylvania in New York City, at which time permanent officers will be elected, by-laws adopted and a central location selected for the Association Headquarters. All members of the Association are urged to plan to attend the Convention.

Membership has slowly reached five hundred and fifty due to the difficulties in obtaining current addresses. Therefore, all former members of the Division and those of the 489th AAA AW Bn (SP), the 704th TD Bn and 995th Engineer Treadway Bridge Company are urged to send in their addresses and those of any others they know to the Secretary-Treasurer at Fort Knox. An immediate answer is guaranteed. Below is an application blank which all former members of the Division desiring membership in the association may fill out and send to the Secretary-Treasurer.

Policies now stated in the temporary by-laws are as follows: The Association, formed by the officers and men of the 4th Armored Division, is dedicated to perpetuate the memory of its fallen comrades, to promote good-fellowship among the survivors, to preserve the *esprit de corps* of the Division, to assist in promoting an everlasting world peace, and to aid members and former members of the division. There are to be no political affiliations or tie-ins with unions or veterans organizations.

A few copies of the *Division History* are still available to paid members of the Association at $2.50 each. The plates were brought back to the United States by

the author, Captain Kenneth Koyen, former Public Relations Officer of the Division, and more copies will be printed in the near future.

Thank you for your coöperation.

Sincerely yours,

CREIGHTON W. ABRAMS,
Secretary-Treasurer.

6th Armored Division

The Sixth Armored Division Association is now in the process of being organized, and former members of the division may expect to receive detailed information in the near future.

Considerable progress has been made in building up an address file, and it is expected that the initial newsletter will be mailed to approximately 10,000 former division members. Additional addresses are required, and it is requested that former members send in as many as possible.

Until further notice, any correspondence regarding the association should be sent to the Acting Secretary-Treasurer at the following address:

1ST LIEUT. H. C. SMITH,
Sixth Armored Division Association,
c/o A.G.F. Board No. 2,
Fort Knox, Kentucky.

On Sunday, April 13, all ex-members of the 8th Armored Division that could be rounded up met at Fort Knox, Kentucky, to initiate a division association, according to Lieutenant Colonel E. R. White, Secretary-Treasurer of the Association.

David L. Hariston of 501 Christopher Place, Louisville, Kentucky, was elected president at the meeting.

A constitution was provisionally adopted and officers were elected to serve until an annual meeting of the Association can be held.

Address of the Association's secretary is: Extension Course Department, The Armored School, Fort Knox, Kentucky.

10th Armored Division

All former members of the 10th Armored Division desiring information about the association, a division history, etc., are asked to write to Secretary, 10th Armored Division Association, c/o General Delivery, Fort Knox, Kentucky. Ex-division men who have received a blank form to be completed and returned—please do so at once and mail it to the above-mentioned address. All correspondence received in the past couple of months by the JOURNAL, has been forwarded to Fort Knox, for direct reply.

Those interested in the organization are asked to write the Secretary as soon as possible.

11th Armored Division

Now that the *Newsletter* has been mailed out to all paid members, it is hoped that all members will mail in their reservation coupons to Bill Lipp, so arrangements can be made as early as possible, for all who plan to attend the convention in August.

The Chicago chapter is rolling along and committees have been appointed to handle the convention planning, entertainment, public relations and publicity. Future meetings of the Chicago chapter will be held the fourth Friday of each month and anyone interested in attending (who has not been contacted) may do so by writing to C. H. Hanson, 1436 West 83d St., Chicago 20, Illinois, and you will be put on the mailing list for notices.

The New York area Chapter is off to a good start now. A meeting of those members was called by George D. Halprin at the Taft Hotel, May 2. Details of this meeting will appear in the next "news notes."

The Washington Chapter is holding a luncheon on May 8, at 12:30 P.M. at the New O'Donnells Restaurant and it is hoped all of the local members will attend.

We expect the Boston, Cleveland and Denver chapters to get started within a few weeks time. James R. Hoffman (who is organizing the Denver chapter) tells us he has been appointed Chief of the Armored Section in the 505 Composite Group of the Reserves.

The response to requests for the missing "rosters" has been great, although we still do not have all of them. Carlos D. Cutler and Raymond C. Moore have sent us part of the 575th AAA—we have received Hqs. and Hqs. Co. of the 22d Tank Bn from James T. Wingard. James L. Harris sent us Co. B and Elmer Hussmann sent in Co. D of the 22d Tanks. We still need rosters of the 55th AIB and the 492d AFA. We have only Co. C of the 55th AIB sent in by Samuel Douglas of Pittsburgh and we are hoping to eventually get all of those still missing from our files.

Our "mail bag" brings the following news we hope will be of interest to you. . . . From Brig. Gen. Holmes E. Dager, now assigned to Headquarters, Vienna Area Command in Austria . . . comes this message to all former members of the 11th . . . "I have received your 11th Armored Division Association Newsletter and I would like to congratulate the officers of the Association for the fine work they are doing in establishing on a firm basis, an active 11th A.D. Association.

"It is particularly important that a Division such as the 11th should have such an association in definite active being, for the reason that we owe it to those who fought with us and are not now living and to their families, to preserve and perpetuate the glorious record to which both our living and our dead contributed so much. The 11th equaled and exceeded in aggressive combat, the record of any other allied division serving in the ETO. It drew mention by name, in the final report of Gen. Dwight Eisenhower, our supreme Com-

mander, for its accomplishments.

"I am very happy to see that you are working so hard toward holding a convention of the association some time this coming August. I do hope that every member will make an effort to attend, and if I am back in the U.S. at that time, I shall certainly be there to meet you all. We will try to organize a similar European convention at about the same time you have designated for the Chicago meeting. If this is at all possible, we will send our greetings from Europe.

"To each member of the division, to their families, and to your officers of the association, I send my sincerest regards and best wishes and my thanks for your continuing efforts and interest in the association."

We hear from Arthur S. Davis that Warren "Scrappy" Lemoine (former CO of the 492d AFA Service Btry.) became the proud papa of a baby boy, and he has been named James Alvin Lemoine. "Daddy" is at present attending Louisiana State University at Baton Rouge.

Also on the Stork's visiting list, we find the names of Lt. Col. and Mrs. A. V. Inge (former CO of the 56th Engr. Bn.) who were blessed with a boy who tipped the scales at a little over eight pounds.

Alfred Dugan (association vice president) became a "papa" several months ago, but evidently in the excitement of the event he forgot to let us know about it, 'cause we just heard the news.

Fred D. Lidka writes that he, Raymond Van Cleave, Willard Alden and Richard Stubenrach (all former members of the 133d Ord. Bn.) are all in the garage and body repairing business in Iowa, and Otto Happel is back at his old job driving a bus in Cedar Rapids. T/4 Lewis M. Gould now attached to the 1st Cavalry Division Band in Tokyo writes that although he won't be at the convention in August, he surely hopes everyone else has a swell time. Patrick H. Tansey (21st AIB) who is attending the University of Michigan says he sees a few 11th fellows on the campus—among them Kellogg (former Div. Band leader) and he sends best wishes to all who are working so hard to make "ours" the best division association going.

Seymout Kessler of Roosevelt, N. J. writes that he has sets of 20 snapshots each, available to you members who might want them, priced at $1.50 the set, postpaid. T/Sgt. Harold N. Hicks (now stationed in the Panama Canal Zone) wishes he could attend the convention and sends best wishes for a very successful event.

And last, but not least, we know all of you will be interested in this message from former Brig. Gen. Charles S. Kilburn, now retired and taking life easy in California. . . . "From the 14th to the 16th of August, the first postwar reunion of the Division will occur in Chicago. There assembled, we may kindle again those attributes and precepts which marked a great fighting division. We may glimpse those things which produced from that first gathering at Camp Polk, an organized, disciplined, formidable combat group of Americans, sustained from courage, loyalty, *esprit de corps* and the will to advance. We will find opportunity and occasion to toast those members of the division who made its history imperishable—those who hold eternally the field of Belgium and Germany over which we fought. . . . May I urge all . . . 'ON TO CHICAGO!' "

We will have more news of the local chapters in the next issue of the JOURNAL for you, and again, we ask that all you members send us "news items" for this column . . . the more received, the better and all contributions to readers of the association news will be welcomed.

* * *

12th Armored Division

Officers and men who fought with the 12th Armored Division in Europe will have a national reunion in New York City on Sept. 13-14, according to the 12th Armored Division Association.

All veterans who served with the unit during its 39 months of service are invited to attend the convention. The exact place in New York City has not yet been determined, according to Pat Harness, Association executive-secretary.

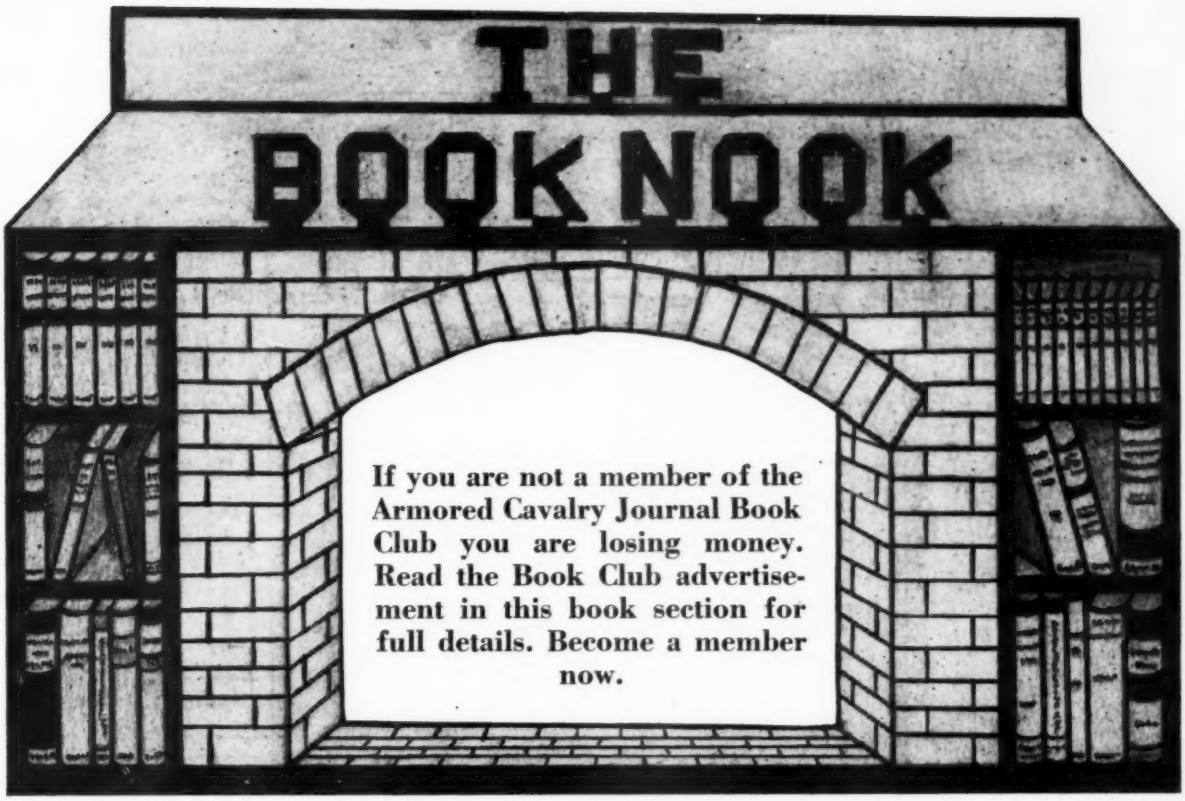
The Division's 200-page combat history is expected to be off the presses some time in May, Harness reported. The Division newspaper, *Hellcat News*, has already resumed publication.

Information concerning the 12th Armored Division's activities can be obtained by writing: 12th Armored Division Association, 2742 S. Veitch St., Arlington, Va.

RIDING AND SCHOOLING HORSES

By The Late Brigadier General Harry D. Chamberlin

The Principles of Equitation are laid down in this book in language understandable by everyone. It is a book written to help the reader become a better horseman. There are chapters on Seat, Hands, Application of the Aids, Saddlery, Schooling, and Jumping. This famous book, which has been out of print for sometime, it being republished by the Armored Cavalry Journal. It will be available about July 1, 1947. The price of the book is $4.00 a copy. Place your advance orders now.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THE SOVIET SPIES: The Story of Russian Espionage in North America. By Richard Hirsch. Duell, Sloan and Pearce, Inc. $1.00.

"It was Igor Sergeievitch Gouzenko who revealed the existence of a widespread conspiracy to obtain secret official information respecting the military potential of Canada, the United Kingdom, and the United States, and to convey such information to the Government of the U.S.S.R. At eight o'clock on the evening of September 5, 1945, he left the Soviet Embassy in Ottawa with 100 documents belonging to the officially accredited Soviet diplomatic representatives. In so doing, he betrayed his government, his superiors, and his oath of office. As wards of the Canadian Government, Gouzenko and his family are now being accorded the close protection of the Royal Canadian Mounted Police."

So begins the introduction to the new book *The Soviet Spies* by Richard Hirsch that gives the first complete story of Russian Espionage in North America.

Hirsch, a former Lieutenant Colonel in the Military Intelligence Division of the War Department General Staff, has been a professional writer on law enforcement and crime problems for the past 14 years. He is well qualified to compile this record of Soviet espionage activities in North America. The Publisher's note to the book states that Colonel Hirsch's views and beliefs expressed in the book are his own and are not to be construed as reflecting the official opinions of the War Department.

The Soviet Spies is an important and sensational book, presenting the facts with brilliant logic and drama.

Among the book's pages will be found the answers to such questions as: What did the "hundred documents" contain; What were the Russians after; Why did Canadian scientists, officers, and others give secret data to Soviet agents; and How did a Prime Minister trap a British atomic scientist caught in "the Net"?

The book is packed with facts and reprints of official documents.

Colonel Hirsch ends his important book with this paragraph: "This has been a study in betrayals. Betrayals that have worked both ways. So long as flags fly and nations endure they will continue to occur. But by practical, realistic steps they can be kept to a minimum. Unless such steps are taken, both as a nation and as individuals, we will awake, too late, to learn the irreparable harm that has been done."

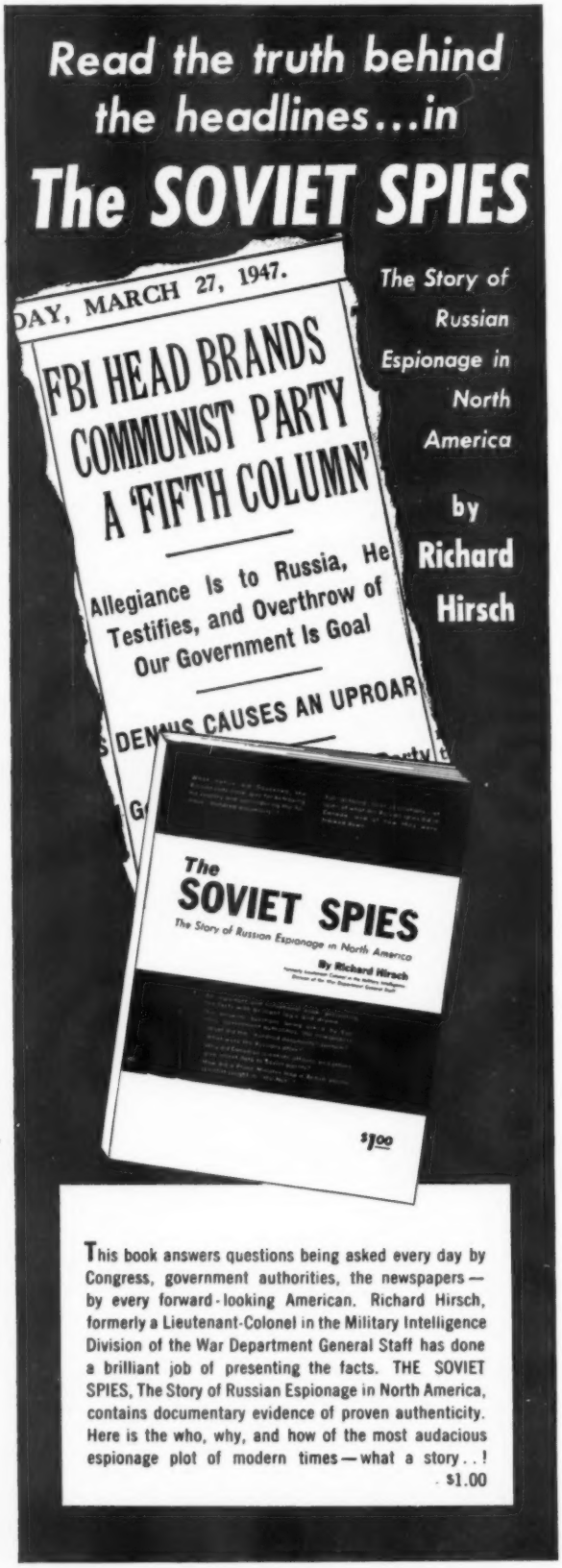
Read this book. It is a must.

WEB OF LUCIFER. By Maurice Samuel. Alfred A. Knopf. $3.00.

This is a novel of Italy during the Renaissance. Mr. Samuel tells a story of love, hope, decency, and idealism at war with craft and brute power. Told against the turbulent and compelling background of fifteenth and sixteenth century Italy, *Web of Lucifer* is a historical novel of grand scope and passionate sweep.

The background to this novel is the career of Cesare Borgia, son of Pope Alexander the Sixth. The French under Charles the Eighth had invaded Italy in 1495, only to be driven out the same year; they returned under Louis the Twelfth in 1499. With them came Cesare Borgia, seeking a throne. Central area of action is the Romagna province of Italy, which lies south of the river Po, between the Apennines and the Adriatic Sea.

Giacomo Orso learns from his sweetheart Leonora and his teacher Fra Matteo to believe that a great moral leader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Allegiance Is to Russia, He Testifies, and Overthrow of Our Government Is Goal
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This book answers questions being asked every day by Congress, government authorities, the newspapers — by every forward-looking American. Richard Hirsch, formerly a Lieutenant-Colonel in the Military Intelligence Division of the War Department General Staff has done a brilliant job of presenting the facts. THE SOVIET SPIES, The Story of Russian Espionage in North America, contains documentary evidence of proven authenticity. Here is the who, why, and how of the most audacious espionage plot of modern times — what a story..!
$1.00

will shortly unify and liberate Italy. *Web of Lucifer* tells what happens to him when, under the spell of his naïve conviction, he falls into the clutches of Cesare Borgia and under the tutorship of Machiavelli. Its climax comes with his disillusionment, the re-establishing of his idealism and hope, and his final joyful recognition of the power of love.

* * *

THE DEADEYES: The Story of the 96th Infantry Division. By Orlando R. Davidson, J. Carl Willems, and Joseph A. Kahl. Infantry Journal Press. $5.00.

A book reviewer reads from day to day many good and bad books, and some in between. This reviewer has just read a war history, written by three soldiers, that can be described only as terrific. Captain Davidson, Lieutenant Willems, and Sergeant Kahl have written a powerful war story: *The Deadeyes.*

This review can begin in no other way than by reprinting in whole the Foreword written by Major General J. L. Bradley, former commanding general of the 96th Infantry Division:

"Every division commander worthy of his position is convinced that his is the finest division in the Army. I am no exception, and I have read nothing in the pages that follow to cause me to think differently.

"I am intensely proud of the 96th Infantry Division. I am proud of the men who were the 96th Division and of the officers who led them. It is not vain pride, for it is they, not I, who made ours a great division. A general simply plots the course—his men do the rest.

"This book has been dedicated, and rightly, to the brave men of this Division who died in battle. I would like the privilege of offering a second dedication—to those equally gallant men who lie in hospitals from coast to coast and to others who, like them, will forever bear the scars of war. They, too, placed honor above life, and their country must never be allowed to forget them.

"To all my men, I say humbly—thank you."

This history of a fighting infantry division starts with the division's Stateside training in the Northwest. It goes on from there to cover the Leyte campaign in the Philippines and the Okinawa campaign. Divided into 10 books of several chapters each, the history also tells the story of the Division Artillery, the separate units, a list of casualties, a list of those men in the Division who were decorated, and more.

It is a book of 310 pages that tells stories of daily heroism and self-sacrifice.

On page 249 of the history is reprinted a letter written by a mother to the commanding officer of her late son that is a masterpiece of sincerity, simplicity and eloquence. A paragraph of this mother's letter reads:

"I get very little comfort from any feeling of 'patriotism.' I know my son was brave, but he had no illusions about war. He wanted to go—but not because he had any illusions about it! He wanted to go because he felt that it was as much his job as any other boy's. He loved us and hated to leave his home, and he hated the whole filthy mess of war. He loved beauty, good music, good books, all outdoor sports—well, he just loved life. And he had to say goodbye to all happiness of living when he had hardly begun to live —because some dangerous beasts in the world were allowed to go free!"

COMMAND DECISION. By William Wister Haines. Atlantic–Little, Brown. $2.50.

This novel is the story of Brigadier General Dennis, commander of a division of heavy bombers in England, through whose office passed the men who ran the war. Dennis wanted to fight just the war, not the Army, the Navy, the rest of the Allies, the White House, Congress, the press and the people. His job was to finish Operation Stitch–the three-town bombing campaign to destroy the centers where the new German jet plane was being manufactured. It meant that he had to send his best men, led by his best friend, far beyond fighter cover; the losses were huge on each mission, but Dennis knew that unless the production line was destroyed the bombers might be run out of Europe. Dennis's superior, General Kane, was miserably trying to pick his way between military threats and political threats, but Dennis did not wait on Congressional Committees.

OUR VICHY GAMBLE. By William L. Langer. Alfred A. Knopf. $3.75.

Produced at the request of former Secretary of State Cordell Hull, the author gives a firsthand account of American dealings with Vichy, both before and after the invasion. He attempts to clarify and explain our Vichy policy. Helped by Admiral Leahy, Robert Murphy, and others, the author makes numerous revelations that most Americans were not aware of. For example, he tells of General Pershing being considered as the First Ambassador to Vichy

MARSHALL: Citizen Soldier. By William Frye. The Bobbs-Merrill Company. $3.75.

This biography deals only with the military career of the wartime Army Chief of Staff. It does not go into General Marshall's services as a special envoy to China and more recently as Secretary of State.

General Marshall's career presents rare opportunities for the biographer to combine action and interest with historical significance. The author, William Frye, who gained much of his information directly from the War Department, has written a book about an outstanding military leader that should be read and studied by every military man.

THE CASE OF ERLE STANLEY GARDNER. By Alva Johnston. William Morrow & Company. $1.50.

Here is the first complete biography of America's most prolific mystery writer and creator of that famous fiction lawyer-detective, Perry Mason. For Perry Mason fans, of which there are millions, this book is a must.

THE STORY OF THE FBI. The Official Picture History of the Federal Bureau of Investigation. By the Editors of *Look* Magazine with an Introduction by J. Edgar Hoover. E. P. Dutton & Co., Inc. $3.75.

This book takes you behind the scenes and shows you by means of vivid photos and clear text exactly how the FBI guards our internal security. Prepared with the full cooperation of the FBI, it is the most dramatic fully illustrated

"I wouldn't have missed it for the world..."

A former Air Force officer, of whom we never heard before, read William Wister Haines' new novel, COMMAND DECISION, *and wrote us this unsolicited letter.*

"I was a Major in the Air Forces, overseas for three years with a B26 combat squadron. Mr. Haines succeeded in crystallizing so many impressions which I had felt but had been unable to put into words, that the story came almost as a shock to me. It was as though the million nebulous things that soldiers thought about were immersed in print and presented here...we had our Casey Dennises, too, and plenty of them: men who refused DFC's and Purple Hearts, and who sought tough missions because they knew the effect on their crews. We knew the answers...but we had a hell of a time reconciling them with what we thought a war should be. We knew, but we didn't understand. I see it a lot more clearly now. We suffered Congressional investigations, political generals, improvident changes of plan with no apparent regard for the purpose of the war. To have put these things into a novel, without either burlesque or falsity, is a magnificent task.

"And it's true - a lot of us, particularly in jobs like mine (Exec officer) used to think of the crews coming in monthly to replace old men; we used to notice how they seemed to get a little younger, each batch. And we'd see the stacks of boxes of KIA boys (that's Killed In Action) and lie awake nights, visioning the long marches of men still training in the States, still finishing high school. Mr. Haines has written a book, and I wouldn't have missed it for the world."

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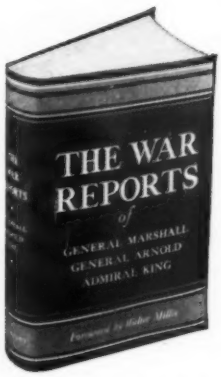

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PICTORIAL HISTORY OF THE SECOND WORLD WAR, Volume 4. William H. Wise & Company. $2.98.

This volume, the fourth, covers World War II in photographs from September, 1944, to August, 1945, and V-J Day. It consists of more than 500 pages of action war pictures.

THE UNO HANDBOOK. By Andrew Boyd. Pilot Press, Inc. $2.50.

Here is a complete guide to the United Nations. It fully explains the structure and procedure of every agency. The book contains texts of principal Charters and Declarations and a complete index.

THE MEMOIRS OF DOCTOR FELIX KERSTEN. With an Introduction by Konrad Heiden. Doubleday & Company. $3.50.

Dr. Felix Kersten is the anti-Nazi physician who treated Himmler, Ribbentrop, Ley, Hess, and other Nazi leaders. In his conversations with them he learned of their unbelievable plans for the future of the world.

His memoirs contain the full, awful details of the inhuman Nazi program, related to him by the men who intended to put it into effect.

This book of 14 chapters begins in 1939 when Heinrich Himmler becomes one of Dr. Kersten's patients and ends in 1945 with the suicide of Himmler.

The titles of the 14 chapters in the book are: 1939: Heinrich Himmler Becomes My Patient; 1940: I Organize My Private Underground Resistance; SS Reichsfuehrer Heinrich Himmler and the SS; 1940-41: Rudolf Hess—Dr. Robert Ley—Count Ciano; 1941: The Nazis Have a Plan for Holland; 1941-42-43; "Los von Rom!"; 1942: Concentration Camps—and Other Matters; 1942-43: Ribbentrop—and the Swedish Match Trust Case; 1943: Germany in Ferment; The Nazis Plan a New World; Adolf Hitler: 1943-44; The Jews; 1944: Beginning of the Crack-up; and Last Days: 1945.

BLUEPRINT FOR PUBLIC RELATIONS. By D. H. Plackard and C. Blackmon. The McGraw-Hill Book Company. $3.50.

Here is a book that every wise Army Public Relations Officer will purchase and place on his desk for continual use. This book of 300 pages gives sound and quick guidance on every phase of planned public relations programming. In addition to presenting details of many successful methods, functions, and techniques, the manual unveils practices heretofore known only to the professional.

Many case illustrations of how public relations and pub-

licity programs are planned and carried on in large and small organizations are given. Particular attention has been directed to advances in the field, and to the part which publicity plays in the over-all public relations picture.

The principles set forth in this book can be adapted to Army use to good advantage by active PROs.

* * *

THE PURPLE TESTAMENT. Edited by Don M. Wolfe. With an Introduction by John Dos Passos. Doubleday & Company. $2.50.

This book is a collection of writings by 53 World War II disabled veterans. None of the authors of this book are professionals. The pieces were written in an English class taught by Don M. Wolfe as part of a course to train the writers to be counselors to disabled veterans like themselves. All money received from the sale of this book beyond the cost of publication is to be distributed to the authors on equal terms.

* * *

THE RANKS OF DEATH. By the late Colonel P. M. Ashburn. Edited by Frank D. Ashburn. Coward-McCann, Inc. $5.00.

Few fields of history have been so neglected as the medical, yet it is probable that no single factor has had as much influence on history as disease. Here at last is a book which makes clear the impact that disease had on the whole course of events in half a world. The book is written so that it is understandable to laymen as well as doctors and historians.

* * *

HISTORY OF THE XVI CORPS. From Its Activation to the End of the War in Europe. Infantry Journal Press. $5.00.

A 110-page history, this book is complete with maps, charts and photographs of XVI Corps operations in Europe. In the appendix are listed the names of all the officers and enlisted men that served with the Corps from September 20, 1944, to June 1, 1945.

* * *

THE STORY OF WAKE ISLAND. By Colonel James P. S. Devereux. J. B. Lippincott Company. $2.75.

Here is the full story of Wake Island told by the man best qualified to tell it—the officer who commanded the Marines on the island during those terrible days against overwhelming odds. This is a firsthand account of the Wake Island siege and it is told vividly and dramatically.

When Wake Island was surrendered casualties stood at 96 killed, about half of whom were civilians. The Jap score stood at some 5,700 killed. Probably no other battle in history can match these figures for comparative losses. The initial effort of the Jap attack on December 11, 1941, was repulsed by a "battalion" of 378 men supported by four planes. In this initial assault the Japs lost some 5,350 men against Marine casualties of four injured. The Japs made their second attempt at landing under the cover of darkness and succeeded.

Heroism rarely paralleled has made Wake Island an unforgettable symbol—like Valley Forge and the Alamo. This book is its complete story.

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Don't Miss It

THE STRANGE ALLIANCE. By Major General John R. Deane. The Viking Press. $3.75.

General Deane, who headed the U.S. Military Mission in Moscow from 1943 until the end of the war, discusses in his book the answers to the questions as to whether Americans can cooperate with Russians and whether Russians will cooperate with us. This book also tells of General Deane's dealings with Soviet officials, Red Army officers and with the Russian people.

THE MIRACLE OF THE BELLS. By Russell Tanney. Prentice Hall. $3.00.

This novel is the story of a coal town that transforms itself from a spirit of hate into one of understanding and brotherly love. The book is rapidly becoming one of the nation's best-sellers.

THE DOCTOR HAS A BABY. By Evelyn Barkins. Creative Age Press, Inc. $2.50.

A warm and winning story, *The Doctor Has A Baby* tells of a mother, the author herself, who read all the scientific books on baby care, threw them away, brought up her baby on instinct and common sense, and lived to smile and tell the tale. It is a delightfully human book written by a woman with a wonderful sense of humor.

THE FOURTH MARINE DIVISION IN WORLD WAR II. Edited by Captain Carl W. Proehl. Infantry Journal Press. $5.00.

This is a factual and accurate history of the Fourth Marine Division's part in the past war. It consists of 238 pages of pictures and text that tell the Division's complete story. Foreword to the book is written by Robert Sherrod, well known war correspondent, who covered many of the Division's combat actions.

SECRET MISSIONS. By Captain (USN) Ellis M. Zacharias. G. P. Putnams Sons. $3.75.

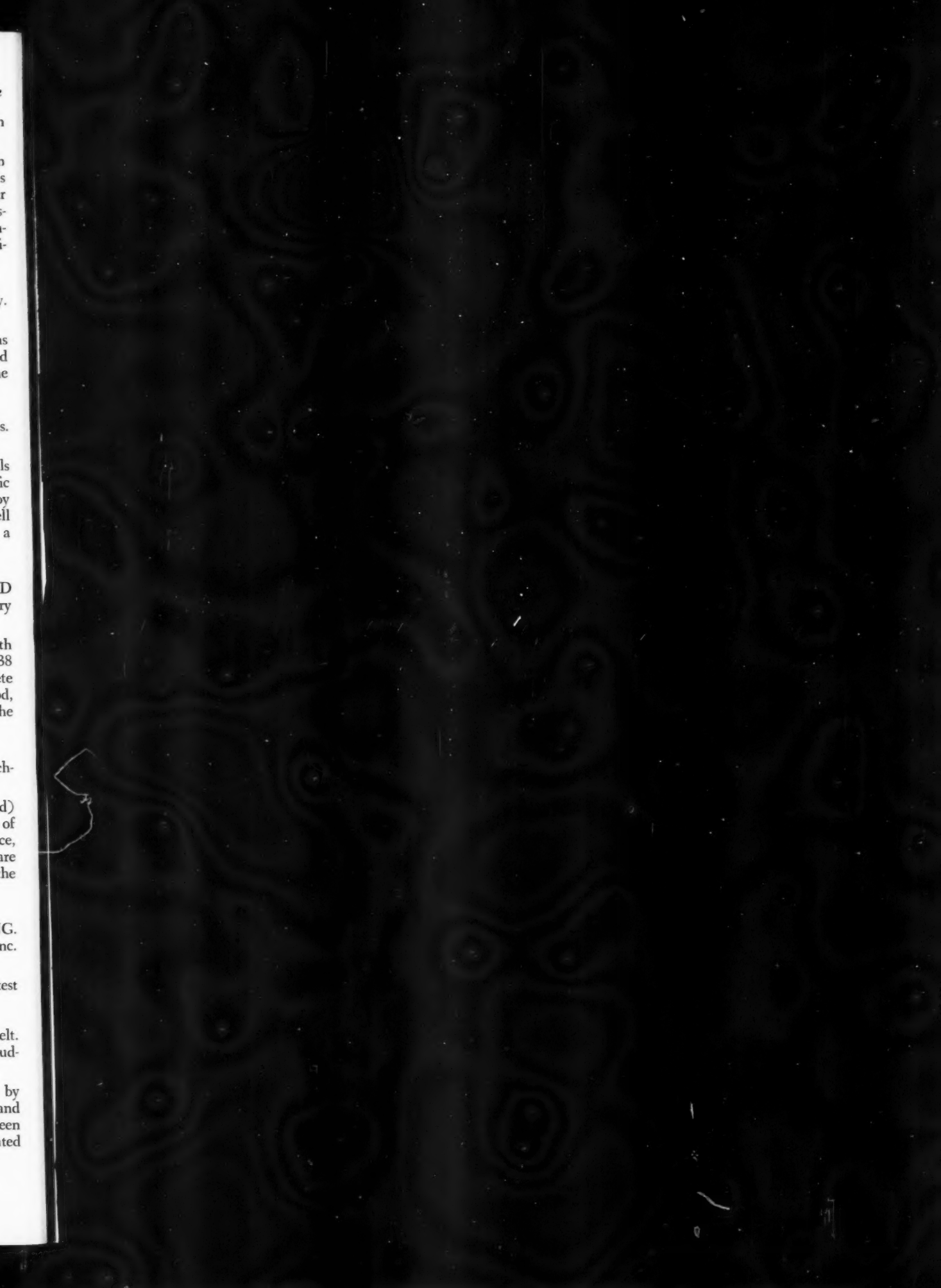
Captain Zacharias, USN (now Rear Admiral, Retired) has written the extraordinary record of his 25-year war of wits, nerves and words against the Japanese Secret Service, culminating in his master stroke of psychological warfare which broke the Japanese will to resist even before the atom-bombing of Hiroshima.

THOROUGHBRED RACING AND BREEDING. Edited by Tom R. Underwood. Coward-McCann, Inc. $5.00.

This is the third edition, revised to include the latest available statistics.

F.D.R. COLUMNIST. Foreword by Eleanor Roosevelt. Edited by Donald Scott Carmichael. Pellegrini & Cudahy. $3.00.

This is a collection of 19 newspaper columns written by the late President for the Macon, Ga., *Daily Telegraph* and *The Standard* of Beacon, New York. They have been printed in an attractive volume with well-documented commentary.



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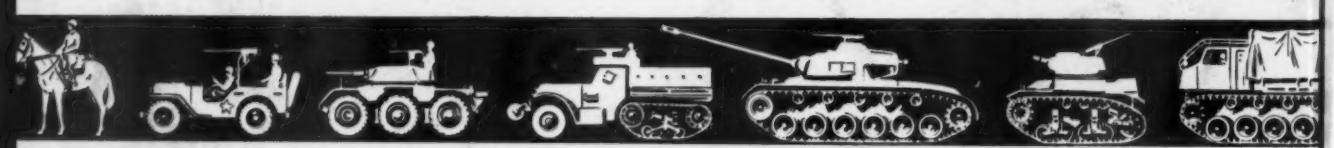
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